DRAFT ENVIRONMENTAL IMPACT STATEMENT

CREST TOWN CENTER

CHANGE OF ZONE APPLICATION

SCTM: 200-872-2-15 & 16 and 200-899-3-2.2, 2.3, 2.4 & 7
Hamlet of Bellport, Town of Brookhaven
Suffolk County, New York

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NP&V Project No. 16212

September 2018

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L Traffic Impact Study (N&P, PLLC, dated June 2018)
M Noise Monitoring Location Map and Noise Analysis Data Sheets

ATTACHMENTS:
IN POUCHES AT BACK OF DOCUMENT

- 4x4 Map, prepared by N&P Engineers & Land Surveyor, PLLC, revised September 2018
- Conceptual Site Plan for Crest Town Center, prepared by N&P, PLLC, last revised September 9, 2018
- 500-Foot Radius Map for Change of Zone for Crest Town Center, prepared by N&P, PLLC, Sheet 1 of 2, last revised 9/7/18 and Sheet 2 of 2 last revised 1/25/17
- L-1 TO NH-H Description, last Revised September 6, 2018
- L-1 TO PDD Description, last revised June 21, 2018

SUMMARY

SUMMARY

Introduction

This document is a Draft Environmental Impact Statement (DEIS) prepared pursuant to the standards and requirements of the New York State Environmental Quality Review Act (SEQRA) and its implementing regulations contained in Part 617, Title 6 of New York's Code of Rules and Regulations (6 NYCRR, Part 617). The DEIS provides detailed environmental information and analyses to supplement the long Environmental Assessment Form (EAF) prepared on behalf of Applicants (Crest Bellport, LLC) for a proposed Change of Zone and subsequent development of the "Crest Town Center" per the Brookhaven Town Board/Lead Agency's May 7th 2018 Positive Declaration and SEQRA Determination of Significance. (**Appendix A** contains the long EAF Part 1 and the Town Board's Positive Declaration/Determination of Significance).

The applicant, Crest Bellport, LLC, seeks Town Board approval to rezone the subject 52.95-acre property from L-Industrial-1 (L-1) to a mixed-use Planned Development District (PDD) and Health Facility District (NH-H) and Planning Board approval for Site Plan/Special Permit, Subdivision and future development of the site under the requested zoning. The requested changes of zone, which are filed under one Change of Zone application, seek to create a 48.46-acre mixed-use PDD and a 4.49-acre assisted living facility under NH-H zoning on the 52.95-acre property.

This document describes the Proposed Action in detail, outlines its purpose and benefits, identifies anticipated environmental impacts from its implementation, considers alternatives to the Proposed Action, and identifies appropriate mitigation measures to avoid or alleviate potential impacts to the maximum extent practicable as required by SEQRA. This DEIS is also intended to provide a wealth of essential information and analyses that are necessary for the Town Board, as the Lead Agency for this SEQRA review, to render an informed decision on the merits and environmental implications of the proposed application and take a "hard look" at the potential environmental effects of the project prior to any final decision in the matter as required by SEQRA.

Finally, this **Summary** is provided as an overview of the DEIS. Review of this **Summary** is not a substitute for the extensive information and analysis of the proposed action contained in Sections 1.0 through 5.0 and the supporting figures, tables and appendices in this DEIS.

Location

The subject 52.95-acre site is located on the north side of the Sunrise Highway North Service Road, south side of Woodside Avenue (CR 99), east side of Station Road, and west side of South Village Drive in the Hamlet of North Bellport, Town of Brookhaven, Suffolk County, New York (see **Figure 1-1**). The property is further identified as six contiguous tax lots listed as Suffolk County Tax Map District 200; Section 872; Block 2; Lots 15 and 16 and District 200; Section 899; Block 3; Lots 2.2, 2.3, 2.4 and 7. The subject site is located in an area containing a variety of land uses including: 1) light industrial uses to the north on the north side of Woodside

Avenue; a major highway transportation corridor (Sunrise Highway and its northern and southern service roads) to its south; a single-family residential neighborhood to its east; and various retail stores, auto repair and autobody shops, a small masonry business, a warehouse, a SCWA wellfield, pump station and water storage tower, and a single-family residential neighborhood to the west (see **Figure 1-2**).

The subject property is located within the following planning, zoning, and public service districts:

- Town of Brookhaven L Industrial 1 (L-1) zoning district
- South Country Central School District (CSD)
- Bellport Fire Department/Fire District
- Suffolk County Police Department (SCPD), 5th Precinct
- Suffolk County Department of Health Services Groundwater Management Zone VI (300 gallons per day (gpd)/acre for commercial projects or 75 percent of property at 300 gpd/40,000 SF for multiple residence projects)
- Suffolk County Water Authority (SCWA), Distribution Area 12
- A PSEG Long Island electrical service area
- National Grid natural gas service area
- Federal Emergency Management Agency (FEMA) Flood Hazard Zone "X" which is described by FEMA as an unmapped upland area that is outside/elevated above any of its Special Flood Hazard Areas

The site is also located outside of but near and between two separate sections of Suffolk County Sewer District (SCSD) No. 7.

The project site is NOT located within the Long Island Central Pine Barrens, any designated Long Island Special Groundwater Protection Areas (SGPAs), Town overlay districts or any established Critical Environmental Areas (CEAs). The site is, however, located within the South Shore Estuary Reserve watershed and the Mud, Abets, and Hedges Creeks sub-watersheds.

Benefits of the Proposed Action

Benefits of the Proposed Action are as follows:

- The project will create a new assisted living facility containing 130 beds for the region's elderly and/or disabled citizens that require assistance with their day-to-day needs.
- A total of 106 Planned Retirement Community (PRC) units will be created to serve the increasing population of "Baby-Boomers," retirees and empty nesters in the Town.
- A total of 160 MF apartments will be provided with a mix of apartment sizes (studio units at 750 SF, one-bedroom units at 900 SF, and two-bedroom units at 1,150 SF) to provide housing for a diverse population.
- Proposed PRC and MF units will include market rate and "affordable" units in accordance with applicable regulations to ensure that a suitable mix of housing is available for households with variable economic means, including young professionals, many of whom have decided in the past to leave Long Island in search of jobs and affordable housing in other areas of the country. A total of ten percent of the PRC and MF units (16 MF and 11 PRC units) will be marketed as

affordable/workforce units.

- The assisted living rooms, and PRC, studio and one-bedroom apartments will generate very few school-age children that might attend public schools, and the two-bedroom apartments are expected to generate relatively few compared to a single-family or three-bedroom apartment development, thereby reducing potential strain on the school district.
- Significant on-site recreational facilities will be provided to serve the anticipated 594 future residents of the site including two recreational buildings totaling 2,400± SF each, two swimming pools, and 162,000± SF of on-site open space.
- The project also involves the purchase and redemption of a total of 24.35 Pine Barrens Credits ("PBCs") to offset requested development density pursuant to Article XV, "Multifamily Residence Districts," § 85-280, "Density (units per acre)" of the Town Code and a $125,887.50 contribution to the Joseph Macchia Environmental Preservation Capital Reserve Fund for the commercial component that will preserve environmentally sensitive land within the Central Pine Barrens.
- The conceptual project will be located on a currently vacant and underutilized parcel that is in close proximity to the Bellport Outlet Center, Home Depot and other businesses that sell essential goods and products or provide necessary or desired services.
- A few diverse businesses will also be created (restaurant, retail, market, health club, and a mini-storage facility) to serve future residents and the greater Bellport community. The new business will be conveniently located to serve the additional 594 residents projected to inhabit the property and will also help to increase the local customer base to support the nearby Bellport Outlet Center, which has had mixed success over the years.
- The project will have ample parking as required by the Town Code to serve the proposed development and keep vehicles off of the rights-of-way of public streets.
- The project will avoid impacts to groundwater resources by proposed connection to public sewers, using water conservation techniques in the project design, and preventing impacts on adjacent and nearby properties and roadways by containing all stormwater runoff generated by a five-inch rainstorm on site or in an adjacent stormwater recharge basin, subject to drainage and grading review and coordination with the Town Highway Department during the site plan review stage.
- The project will offer a quality mixed-use residential and commercial development with sufficient buffers on-site along the adjacent residential neighborhood to the east to provide ample separation, screening and buffering.
- The building design and residential facilities will establish a quality sense-of-place based on a carefully considered master plan and promote community interaction on the site.
- The project will reduce the burden on community service providers by maintaining the internal road system, thereby reducing the need for Town highway snow plowing, on-site drainage system oversight and related maintenance efforts on the property.
- The project will use energy efficient fixtures and must comply with State Building and Energy Code requirements.
- At full build-out, the proposed project is projected to generate over $1.67 million in annual taxes. This represents a net increase of over $1.595 million per year when compared to existing site conditions. The proposed project is also anticipated to levy tax revenues for the South Country CSD, estimated to total over $1.17 million per year. These property tax revenues will cover all associated expenses incurred by the projected 20 public school children to occupy the site, resulting in net surplus revenue to the school district of over $760,000 per year. This net revenue could ease the district's need to tap into additional fund balances and could also help alleviate an increased burden on other taxpayers throughout the district.
- The project will generate needed temporary construction jobs, full-time and possibly part-time

assisted care facility employment, and permanent maintenance and retail related jobs and thereby provide employment opportunities to the community. During the estimated five-year construction period, the proposed project is anticipated to generate 148.8 full time equivalent (FTE) jobs. Once construction is completed and the site is occupied and operational, the proposed project is anticipated to generate 95.0 FTE jobs on site. The 95.0 FTE jobs will have an indirect impact of 52.2 FTE employees and an induced impact of 44 FTE employees in other industry sectors, bringing the total economic impact of employment to 191.2 FTE jobs during annual operations. A detailed **Fiscal and Economic Impact Analysis** is provided in **Appendix B** of this DEIS.

Project Design and Layout

The Applicant, Crest Bellport, LLC, seeks Town Board approval to rezone the subject 52.95-acre vacant and wooded property from L-1 to mixed-use PDD and NH-H zones. The requested Changes of Zone which are filed under one Change of Zone Application specifically seek to create a 48.46-acre PDD and a 4.49-acre assisted living facility under NH-H zoning. To do this and develop the site and allow for private ownership of future land uses, a six-lot subdivision of the property will be required from the Town Planning Board along with the filing of reciprocal easements for access, parking and utilities, as well as Site Plan and Special Permit approvals for actual construction and a height variance or Planning Board waiver for the NH-H building. Subdivision will also be required to allow for independent ownership and operation of future uses.

The proposed 48.46-acre mixed-use PDD will include: 1) a 160-unit multi-family residential development consisting of 20 studio apartments at 750 SF per unit, 80 one-bedroom apartments at 900 SF per unit, and 60 two-bedroom apartments at 1,150 SF per unit; 2) 106 1,950 SF two-bedroom PRC units with private garages; 3) 33,600 SF of retail or health club use; 4) a 4,500 SF restaurant; 5) a 15,000 SF market; and 6) a two-story mini-storage warehouse facility having a total gross floor area of 119,600 SF. The proposed 4.49-acre NH-H zone will contain the seventh use, a 3.5-story assisted living facility with a 39,116 SF building footprint that will contain 130 beds. The northernmost 38.69 acres or 73.1 percent of the site will be developed with residential uses including the assisted living facility, PRC, and multifamily dwellings; while, 26.9 percent of the site (14.26 acres) at the south end of the property will be developed with the mixed commercial uses including the mini-storage warehouse, restaurant, retail/health club space and convenience market (See **Conceptual Site Plan** attached to the inside of the cover at the end of this DEIS)

The proposed mixed-use PDD will be fully consistent with applicable land use and dimensional requirements of that zone. The NH-H component of the development will also be consistent with applicable land use zoning standards with the exception of requested dimensional flexibility relating to the maximum building height requirement (proposed 50 feet and 3.5 stories where a maximum of 35 feet and 2.5 stories is required). This request for flexibility in the height of the assisted living facility will help to ensure the practicality and sustainability of the assisted living component of the action and overall development project which will achieve various Town goals for diverse affordable and market rate apartments, a residential community for seniors, assisted living facilities and planned development. The project also involves the purchase and

redemption of 24.35 PBCs and a payment of $125,887.50 to the Joseph Macchia Environmental Preservation Capital Reserve Fund to offset the requested development density and preserve critical environmental resources in environmentally sensitive areas of the Town.

Permits and Approvals Required

All changes of zone, subdivisions and site development submissions are subject to review under SEQRA, depending on the SEQRA classification of these actions. For the Proposed Action, the review begins with the submission of the Change of Zone application to the Town Board. Based on the information presented in the documents comprising that application, the Town Board, as Lead Agency under SEQRA, will evaluate the project to determine if a significant impact to the environment will or may occur from the rezoning and future development under the proposed zoning. Site Plan/Special Permit, relaxation of NH-H building height, and Subdivision review will then be required from the Planning Board.

This DEIS complies with SEQRA processing requirements as administered by the Brookhaven Town Board which is Lead Agency for this environmental review. It has been prepared in order to take a "hard look" at and address any potential environmental impacts that may be of concern to the Town and the Bellport communities. This document also provides an analysis of the potential impacts of development of the subject property, consistent with its current zoning, in order to establish a comparative assessment of possible impacts and benefits. Finally, the DEIS is intended to provide the Brookhaven Town Board and Planning Board with information to assist in reaching informed decisions on the Change of Zone application, Subdivision and Site Plan/Special Permit applications.

The following Table provides a list of the permits, approvals and agency reviews anticipated to be necessary for the proposed project.

PERMITS, APPROVALS AND AGENCY REVIEWS REQUIRED

Applicable Board/Agency	Permit/Approval/Review Type
Brookhaven Town Board	Change of zone approval
Brookhaven Town Planning Board	Subdivision, Site Plan, Special Permit, Variance/Waiver
Brookhaven Town Building Department	Building permits
Suffolk County Department of Health Services	Wastewater disposal and water supply approval
Suffolk County Department of Public Works & Suffolk County Sewer Authority	STP connection approval
Suffolk County Department of Public Works	Road work permit (Woodside Ave./CR 99)
Suffolk County Water Authority	Water supply connection approval
Suffolk County Legislature	STP connection
Suffolk County Planning Commission	Section 239-m Planning Review
New York State Department of Environmental Conservation	SPDES General (stormwater) Permit, STP connection
New York State Department of Transportation	Road work permit (SR 27 north service road)

Potential Impacts and Proposed Mitigation

Topography and Soils

Potential Impacts

The existing site topography will not be significantly altered by the proposed project. The property is relatively flat to gently sloping with the exception of a small area of gentle-to-moderate slopes in the northwest corner of the site. An estimated 39.84 acres will be cleared under the **Conceptual Site Plan** (attached at the end of this DEIS), minor grading will be necessary, and an estimated 15.33 acres of the site will later be landscaped, leaving 11.21 acres in a natural/undisturbed condition. A total of 9.55 acres will be covered by buildings and an estimated 16.85 acres will be paved for streets, parking lots or sidewalks. Disturbed areas will have to be re-graded as necessary and the slopes stabilized through building construction, paving, temporary seeding, and final landscape plantings but this re-grading appears to be minor due to the limited topography on the site. The proposed grading program will be primarily directed toward establishing level building areas and directing stormwater runoff to the proposed drainage collection and recharge systems. Since existing topographic conditions on most of the site are generally flat to gently sloping, it is expected that the cutting of slopes will be very limited if at all necessary and grading will not be significant. Excavations for the construction of building foundations and installation of drainage structures and underground utilities will, however, be necessary and require backfilling and regrading to reincorporate soil into the site. This excess soil material can be easily reintegrated into the site, thereby limiting if not eliminating the export of soil. Grade transitions will be significantly less than a 1:3 slope and retaining walls are not anticipated.

All construction vehicles and equipment, as well as material storage and staging areas will use a designated construction entrance to the site which will be located at the proposed access/egress on/off of Station Road. Truck traffic related to construction will be temporary and intermittent. Since significant soil import and export is not anticipated to be necessary due to flat or gently sloping site conditions, the large size of the property which can accommodate excess soil, and the overall quality of the soils on-site for drainage and construction, some heavy construction vehicles and equipment can be parked on-site for extended periods of time with relatively limited need for excessive on and off-site dump truck traffic that are typical of project sites with steep topography requiring considerable movement of soil on and off-site. Moreover, the major roads and highways in the area (Sunrise Highway, Woodside Avenue and Station Road) have sufficient capacity to accommodate the anticipated construction traffic.

A detailed Grading and Drainage Plan and Erosion and Sedimentation Control Plan will be prepared as part of the site plan application process. These plans will provide additional details regarding overall site grading and drainage and erosion control, and require Town planning and engineering reviews and Planning Board approval prior to implementation to address any topographic issues and concerns. All grading and the drainage system will conform to applicable Town standards and regulations. Grading activity will be conducted internally within the site and will not impact adjacent properties, especially residentially developed land as existing woodlands along most of the property's perimeter will be retained. In addition, construction

management techniques outlined in **Section 4.5** of this DEIS will ensure that sedimentation and erosion control measures are implemented.

The need for a SPDES General Permit and Stormwater Pollution Prevention Plan (SWPPP) will be determined during the Site Plan approval process; however, it is noted that there are no nearby receiving waters or wetlands in the area. If a SPDES Permit and SWPPP are required, the project team will fully comply with the requirements of the permit, the guidelines for SWPPP preparation, and the standards and requirements of the Town Code and Town Engineer.

As a result of the relatively flat nature of the site's topography, significant surface alterations are not anticipated with the exception of activities necessary for construction of foundations, streets and parking lots, installation of drainage structures, water and sewer mains, and underground utilities and landscaping. There are no unique geomorphic features on-site and a variety of stormwater, erosion and sedimentation controls will be implemented to address the minor topographic concerns identified.

An assessment of soils was conducted based on Soil Survey information which revealed that soils on-site are generally well-suited for development and will pose mostly minor limitations or constraints on development. Possible minor issues include:

- A slight risk of pollution of lakes, springs, or shallow wells due to the relatively permeable nature of PlA, RdA and RdB soil. This issue specifically relates to the use of conventional on-site septic systems combined with rapid soil permeability. Since the project will connect to public sewers, and drainage will be properly sited, designed, and installed, this issue does not pose a constraint to proposed development of the site;
- Rapid or moderate-to-rapid recharge of irrigation water due to the well-drained nature of the soils. This minor issue can be addressed by planting native, well-adapted and/or low water demanding landscaping (xeriscaping); mulching or applying topsoil if needed in some areas for greater water holding capacity. Issues relating to drainage are limited due to the considerable property size which allows for proper siting of drainage leaching pools, possible use of an existing adjacent recharge basin that is adjacent to the southeast corner of the site, and the relatively considerable depth to groundwater at the site, subject to drainage and grading review and coordination with the Town Highway Department during the future site plan review stage, which is estimated to be at least 35 feet below the ground surface.
- The only other minor issue is a small area of the gentle-to-moderately steep slopes in the northwest corner of the property which can be easily addressed by proper grading and slope stabilization techniques.

There are no lakes or wetlands on-site and the proposed development will rely on a public water supply as its source of potable drinking water. Wastewater will be conveyed off-site to a County STP for advanced sewage treatment and disposal. A SCWA water main is available along the frontage of the property. The Suffolk County Sanitary Code requires all multifamily residential developments to connect to public water supplies when multifamily residential developments are proposed and mains are available in the area.

The project has and will continue to undergone review by SCWA to ensure adequate water supply and protection of the nearby water supply well field. The applicant has made several

changes to the plan to ensure that prior comments of SCWA are addressed and water supply infrastructure in the area is protected (see **Section 2.2** and **Section 3.2** for more on the protection of groundwater and the public drinking supply).

All stormwater runoff generated on the developed portion of the property will be retained and recharged in on-site drainage systems designed to fully accommodate the volume of runoff anticipated from the required design storm event, and in conformance with Town requirements. Some of the drainage on-site may be discharged to the Town recharge basin located adjacent to the southeast of the site, subject to Town drainage and grading review and Highway Department coordination at the site plan review stage, as this recharge basin is consistently dry based on past aerial photography and may have been developed to accommodate future development of the subject site along with the existing subdivision located to the east, which it currently serves. Drainage plans will be developed in accordance with the New York State Stormwater Management Design Manual and New York Standards and Specifications for Erosion and Sediment Control, and drainage will be designed to ensure that there are no impacts to the nearby public wellfield. Finally, the soils present on-site do not have characteristics that would limit or otherwise adversely affect the operation of the drainage system. Recharge is expected to be rapid or moderately rapid, and depth to groundwater is sufficient to allow for recharge of stormwater and considerable filtration before reaching the water table.

Potential fugitive dust impacts will be mitigated through implementation of dust, erosion and sedimentation control measures that are described in **Section 2.1.3**. A Grading and Drainage Plan will be submitted to the Planning Board at the site plan/subdivision stage as will a detailed Erosion and Sedimentation Plan, which will be subject to review and approval of the Town. This will ensure that the project's drainage system will function properly and minimize potential stormwater impacts to the maximum extent practicable and erosion potential will be property managed. Based on these considerations, no significant impacts are expected with regard to soils.

In general, soil impacts will be mitigated through implementation of dust, erosion and sedimentation control measures that are described in **Section 2.1.3**, and to be more fully explored during site plan review. A Grading and Drainage Plan will be submitted to the Planning Board at the site plan/subdivision stage as will a detailed Erosion and Sedimentation Plan, which will be subject to review and approval of the Town. This will ensure that the project's drainage system will function properly and minimize potential stormwater impacts to the maximum extent practicable. Based on these considerations, no significant impacts are expected with regard to soils.

Since the site has not been developed and there are no records of site contamination filed with the NYSDEC for the property or adjacent land, existing soil contamination is not expected to be present. The Brookhaven Landfill is located approximately 1,500 feet due east of the subject property; however, a review of groundwater table contours for the area (**Figure 2-3)** and the mapped contamination plume suggests that groundwater beneath the site flows in a south/southeasterly direction away from the landfill and away from the subject site and toward Beaverdam Creek, thereby posing no obvious concerns of existing subsurface contamination at

the subject property. This flow was also noted by **Wexler (1988)** who studied the landfill plume and documented this finding in a U.S. Geological Survey report.

The above findings, along with the fact that the conceptual development consists of relatively clean land uses and will be connected to public water and sewer suggests that there are no significant concerns of existing subsurface site contamination at the subject site or issues or constraints to development related to topography or soils.

Mitigation

The current action (Change of Zone) does not require detailed drainage, grading and erosion control plans; however, detailed plans will be submitted during the site plan stage. The following mitigations are planned for the future construction aspects of the project.

- Proper site grading design by a licensed professional engineer and reviewed by the Town will eliminate the limited soil restrictions posed by slopes.
- Clearing and rough grading of the site will be conducted in accordance with the approved Site Plan and under the supervision of the Town Building Department.
- A stabilized construction entrance will be provided to reduce the tracking of soil on to public streets.
- An Erosion and Sediment Control Plan will be prepared during the site plan stage and implemented during construction.
- Erosion controls including work area perimeter silt fencing and drainage inlet protection will be installed around all grated drainage inlets, as applicable, to prevent sediments from entering and settling within any subsurface drainage structures that may be affected.
- Drainage infrastructure will be installed to meet the design and capacity requirements of the Town and will meet the satisfaction of the Town Engineer.
- Material staging areas and designated stock pile locations will be located on-site and will be protected.
- Native plants or species that are well adapted to site soil conditions, mulching and "xeriscaping," as well as the use of efficient/water conserving irrigation systems, watering at night and only when it is needed, watering selectively, and in zones rather than site-wide, will help to overcome minor issues associated with excessively drained soils.
- Test borings are expected to be completed in drainage areas to ensure that suitable subsoils are present. If poorly drained soils or hardpan are encountered (not anticipated), these soils can be easily removed and replaced with clean sand to ensure adequate drainage.
- Sanitary wastes will be conveyed to the Twelve Pines STP for treatment and disposal. The advanced (tertiary) level of treatment that will be provided, and the use of an approved stormwater collection and recharge system that complies with all standards and specifications of the Town and applicable state and County agencies, will help to reduce soil, groundwater and subsurface issues. These coupled with a relatively deep groundwater table and the removal and replacement of subsurface soils if restrictive layers are encountered will help to protect groundwater.
- Site grading operations will be undertaken in a manner to promote the incorporation of excavated material into the project site.
- If required, a SWPPP, including a detailed erosion and sediment control plan, will be prepared as part of the site plan submittal. These plans will assist in the management of stormwater generated on the site during construction, and for post-construction stormwater management. The Planning

Board and Town Engineer will provide independent review of the plans and must approve the plans in order for them to be implemented.

- Dampening soil if necessary to control dust, installation of a stabilized construction entrance and/or "rumble" strips at the construction entrance to remove soil from truck tires, drainage inlet protection (if drains may be affected), establishment of suitable internal construction staging areas and retention of naturally vegetated buffer areas around most of the perimeter of the property will minimize disturbance and issues from soil resources during construction to the extent practicable. Onsite construction vehicle speeds will be kept to a minimum to prevent unnecessary raising of dust; and reseeding and landscaping will be implemented as soon as possible after ground disturbance to stabilize soils.
- Equipment involved in grading will be routed and parked within the site in proximity to the grading area, to minimize the amount of truck activity, thereby reducing the potential for airborne dust.
- Development areas will be permanently stabilized and slopes will be 1:3 or less to minimize erosion.

Water Resources

Potential Impacts

Surface Water and Drainage

Since there are no wetlands on-site as determined by on-site field inspections and no natural or artificial wetlands on or near the property that are within NYSDEC or Town wetlands jurisdictions, no particularly vulnerable surface waters or wetland systems were identified. An estimated 11.21 acres or 21.17 percent of the property will remain in its natural forested/vegetated condition and another 15.33 acres or 28.95 percent of the property will be landscaped with turf, trees, shrubs and flowers. As a result, a total of 26.54 acres or 50.12 percent of the property will be pervious natural or landscaped ground that will help to recharge, absorb and transpire precipitation falling on the site and mitigate runoff impacts. In addition, the Applicants plan to install a system of stormwater catch basins and leaching pools to recharge runoff on-site and may or may not seek to discharge runoff to the recharge basin that is adjacent to the southeast corner of the property which is believed to have been deliberately oversized to accommodate the subject site. The project will also connect to the Twelve Pines STP (subject to final SCSA approval) which not only will help to protect groundwater quality but could also help to protect surface waters and wetlands that are farther away since these features are sometimes fed by groundwater.

The Town of Brookhaven requires that all stormwater runoff generated on a development site be retained and recharged in an on-site drainage system designed to accommodate a five-inch rainfall event. The project's drainage system will have a capacity that equals or exceeds the minimum volume required by the Town and all stormwater collected in on-site drainage collection systems will be directed to subsurface leaching pools and recharged into the ground on-site or may be discharged to the recharge basin located adjacent to the southeast corner of the property, subject to drainage and grading review and Town Highway Department coordination during the site plan review stage. Erosion and sedimentation controls will also be put into place during site clearing, grading, and construction, thereby retaining sediment on the property and keeping it from being transported and deposited into street drainage systems or on to adjacent

properties. Dust controls will also be employed as needed to prevent sedimentation. Landscaping plans that comply with the Town's policies and guidelines will be submitted to the Planning Board during the Site Plan review stage and the Applicant and its consultants will work with the Town and SCWA to ensure that this plan avoids or limits the need for excessive irrigation and fertilization in order to protect the integrity of stormwater runoff and the quality of the Sole Source Aquifer, as well as to reduce overall potable water consumption.

Site development will alter both the drainage pattern and volume of runoff generated on the site. Runoff generated within the site will increase in terms of total volume due to a significant increase in impervious surfaces on-site including many buildings, parking lots, internal streets, driveways, and sidewalks on the currently vacant and wooded property and the clearing of trees and other vegetation that absorb water and promote evapotranspiration. The Proposed Action, however, involves the retention of 11.21 acres of natural woodland and the planting of 15.33 acres of landscaping totaling 26.54 acres of vegetated land or 50.12± percent of the 52.95-acre site. Moreover, since there are no regulated wetlands or surface waterbodies nearby that could be adversely affected, the well-drained to excessively-drained soils in the area, and considerable depth to groundwater, which is estimated to range between 35 to 44 feet below the ground surface (bgs), thereby providing considerable separation distance between ground and water table for natural filtration, subsurface water storage, and some natural treatment, significant water quality impacts are not expected. It is expected that some hardscaping will be used in proposed recreation areas, as well as some non-fertilizer dependent landscaping to limit the potential use of fertilizers.

The Grading, Drainage, and Erosion and Sediment Control Plans to be prepared as part of the formal site plan submission, will be designed by a professional engineer in accordance with applicable State and Town standards and will be subject to review and approval by the Town Engineer and Planning Board prior to plan approval. This review must ensure that the site drainage system is properly designed to address runoff, that adequate capacity is provided and that the proposed structures minimize potential runoff issues to the maximum extent practicable.

With regard to topography, the property is quite large and relatively flat and soil redistributed by grading, excavations or any necessary cutting or filling are expected to be retained on-site, backfilled where necessary and worked back into the property by grading to "balance" the site, thereby eliminating the need for soil importation or exportation. Clearing and grading required to develop the site will nevertheless leave soils temporarily exposed and vulnerable to erosion from wind and rain during the site preparation and construction processes. For this reason, an Erosion and Sediment Control Plan will be prepared in accordance with applicable NYSDEC Guidelines for Urban Erosion and Sediment Control, and will include the following mitigative measures as warranted:

- The construction process will begin with the establishment of flagged clearing limits where needed, followed by installation of erosion control measures.
- Silt fencing, staked hay bales, inlet protection, and good housekeeping procedures will be utilized where applicable.
- A stabilized construction entrance or "rumble strips" will be installed at the site entrance during site preparation and construction to prevent soil from adhering to truck tires and being tracked onto public streets.

- Once heavy construction is completed and site utilities are installed, finish grading will be initiated, followed by soil preparation using topsoil mix if needed, final seeding and the planting of site landscaping.
- The drainage system will further provide permanent stormwater controls once construction is completed.
- Construction equipment and vehicles will be parked and loaded/unloaded within the site and off of adjacent rights-of-way.

As a result of the site conditions, proposed development and stormwater management as well as erosion control measures that are inherent in the project and described above, the proposed project is not expected to adversely impact surface water or drainage conditions on or in the vicinity of the subject site.

South Shore Estuary Reserve Watershed (Mud, Abets and Hedges Creek Sub-watersheds)
The main topics of concern associated with the protection of the SSER and the overall goals and recommendations of the SSER CMP can be broken down into four classifications:

1. Improving and maintaining water quality;
2. Protecting and preserving living resources in the Reserve;
3. Expanding public use and enjoyment of the estuary; and
4. Sustaining and expanding the estuary related economy.

The subject property falls within the SSER watershed but is far enough inland to be outside of the SSER Critical Environmental Area (CEA) which is present primarily along the shoreline. Even though the subject site is located at an inland location (at least 2.3 miles) from the SSER, its presence within the greater SSER watershed and the sub-watersheds of the Mud, Abets and Hedges Creeks, suggests that there is a small potential for minor impacts. However, as previously indicated the headwaters of the three creeks are separated from the subject property by the Sunrise Highway ROW and are considerable distances from the subject site, making the possibility of significant environmental impacts very unlikely.

Potential impacts to the SSER from a project such as the Crest Town Center typically arise from the individual and/or cumulative effects of site clearing, grading, construction, the specific types of land uses to be constructed and functioning, and the ultimate occupation and related human activities of future residents and commercial uses. This can include the effects of on-site wastewater generation and disposal (if the project was not connecting to an advanced sewage treatment facility), fertilization of landscaping, pesticide applications (none are proposed) and stormwater runoff and infiltration which can recharge pollutants that have been picked up from the ground surface and carried to surface waters or discharged into the ground which can leach into surface waters via underflow. Soil erosion, transport, and deposition into wetlands or surface waters, the most common stormwater pollutant during construction activities, can also affect surface waters if not properly controlled. The above-described processes can adversely affect surface water quality, dissolved oxygen concentrations, biological/ ecological communities (mostly fish and shellfish) and the recreational and economic uses and enjoyment of the SSER's surface water resources. Nevertheless, the subject property is a considerable distance from the SSER and its closest perennially flowing tributaries; is separated from these

waterbodies by Sunrise Highway and various other natural and man-made features; and does not have any direct open water connections, hydraulic connections or known conduits to these surface water bodies, which significantly reduces any possible impacts to waterbodies in the region.

The capture of stormwater runoff and recharge into the ground using leaching pools or recharge basins in developed areas such as the subject site, provide various surface water quality benefits through the processes of soil filtration, pollutant sequestration, chemical and biological processes that breakdown pollutants and subsurface dispersion. Moreover, connection to the nearby Twelve Pines STP will help to ensure that wastewater generated on the property is not discharged on-site or improperly treated. The nitrate removal capabilities of the STP will help to ensure that sewage is properly treated before it is recharged into the ground. The above mitigation, along with maintaining over 11.21 acres of land in its natural condition and using native or well-adapted plants as part of the landscaping program to reduce the potential for water quality impacts like eutrophication and low dissolved oxygen concentrations in water (hypoxia) will also help. In addition, while there is very little to no concern from flooding or on-site drainage or site disturbances, erosion and sedimentation controls will be implemented during site preparation and construction to ensure that surface waters will not be affected by these processes.

Considering the existing industrial zoning of the property in comparison to the proposed residential and commercial uses associated with Crest Town Center, with connection to an existing SCDPW STP, it is expected that potential water resource impacts will be reduced by the proposed project as compared to development under existing zoning. Also, it should be noted that Town and State agencies regulate activities in and around surface waters and wetlands through wetlands protection programs and by requiring that permits be issued before certain work or land uses and activities that may affect the integrity of surface water resources are performed. Since there are no known nearby surface waters or wetlands, such permits do not appear to be necessary.

Finally, it should be noted that groundwater flowing beneath the site is expected to flow in a south-southeasterly direction, more toward Beaverdam Creek and the greater SSER, based on groundwater table contours (**Figure 2-3**) and may ultimately discharge via underflow and seepage into that surface water system. However, as previously discussed, the various mitigations outlined above and the considerable subsurface travel time for groundwater to reach Beaverdam Creek (likely years) provide considerable protection to this waterbody. See also discussion on groundwater below.

Based on the preceding review, area conditions and proposed safeguards and mitigation strategies, the Proposed Action is not expected to result in any significant adverse environmental impacts on water quality or other resources and benefits of the SSER or its bays and tributaries. The project will also not have any significant impact on the recreational and economic resources of the SSE and is considered to be consistent with the overall goals and objectives of the SSER CMP.

Groundwater Hydrology/Hydrogeology

The depth to groundwater at the site ranges between 35 and 44 feet below ground surface (bgs) and the permeable nature of the Upper Glacial deposits and surface soils at the site promote groundwater recharge and horizontal groundwater flow away from stormwater leaching pools and/or recharge areas. If any restrictive soil layers are encountered within any proposed leaching area, this soil will be removed and replaced with clean fill of an appropriate soil texture to facilitate leaching and recharge. Consequently, it is not anticipated that the direction of groundwater flow will be affected by the expected increase in localized recharge, as the overall slope of the water table controls this characteristic and localized effects from mounding is expected to be isolated to the designated leaching areas with permeable soils and wastewater from the project site will be pumped to SCSD's Twelve Pines STP for treatment and disposal.

There are no natural surface water bodies or wetlands on or near the site that could be affected by an increase in recharge and the associated limited and localized hydrologic changes anticipated. Treatment and discharge of wastewater at the Twelve Pines STP is not only beneficial in terms of the level of sewage treatment provided and the quality of effluent to be discharged at the facility but also will prevent possible impacts to the SCWA wellfield located adjacent to the proposed Crest Town Center site, if wastewater was to otherwise be treated and discharged on-site. The applicant will work with the Town and SCWA to reduce or conserve potable water use on the property by considering water efficient irrigation systems and indoor fixtures and by retaining an estimated 21.17 percent of the site in a naturally vegetated condition.

Groundwater Quality

Public Water Supply - The 2016 groundwater data for Distribution Area/Pressure Zone 12 provided in **Appendix C** and correspondence from the SCWA (**Appendix D**) indicate good to excellent water quality at the site with the exception of iron and occasional nitrate concentrations that are sometimes above typical ambient levels but still within the required MCL threshold established by federal and state authorities and implemented locally.

Iron is a naturally occurring inorganic mineral that is commonly detected in groundwater at elevated levels. It poses little threat to human health but can impart a metallic taste in drinking water and discolor water making it less desirable for drinking and stain fixtures and clothing when washed in it, if left untreated. Despite the exceedance(s) of the MCL for iron, this compound can and is easily and routinely removed as needed by water purveyors as part of typical water quality monitoring and treatment processes.

Nitrate in groundwater can cause health effects in human infants when present in very high concentrations and can cause eutrophication (over-enrichment) of surface waters and wetlands, particularly tidal wetlands, which can affect dissolved oxygen concentrations, leading to hypoxic or anoxic conditions that adversely affect fish and shellfish populations. As previously noted, the highest concentration recorded from the 479 nitrate samples taken from SCWA Distribution Area 12 wells in 2016, was below the 10 mg/L MCL for nitrate. Nevertheless, the project will be required to connect to an approved STP that is designed to provide advanced nitrate treatment and removal, thereby significantly reducing nitrate loading from the Proposed Action and potential elevated concentrations in drinking water. Special attention will also be paid to the

plant materials used to landscape the site to ensure that the species to be planted are either native to the area or well-adapted to area conditions to reduce the need for fertilization, not to mention reducing demand for irrigation water.

The proposed project exceeds the SCDHS's allowable flow for conventional on-site sanitary systems, and therefore, as previously noted, must connect to a sewage treatment facility to ensure an acceptable level of treatment. Since the project is located in very close proximity to Suffolk County Sewer District No. 7, the Applicant plans to connect the proposed development to the District's nearby Pump Station No. 5 and area sewer mains, and application to SCSA and SCDPW are pending. Connection to public sewers at the Twelve Pines STP provides for the necessary wastewater treatment, including necessary nitrogen removal, and therefore, addresses any potential effects that would otherwise occur from on-site wastewater discharges. In addition, it is recommended that to the extent practicable, landscaping at the site consist of native or well-adapted plant species that require minimal if any fertilization. This will further reduce the overall nitrate load from site development and fertilization of landscaping, while also reducing irrigation demands. Moreover, a total of 11.21 acres or 21.17 percent of the site will remain in its natural condition which will reduce the need for site landscaping and also help to mitigate potential groundwater quality issues associated with fertilization; not to mention water quantity issues from excessive irrigation. Finally, the site is currently vacant woodland and is not known to have been contaminated by any past land uses or site activities, thereby providing a safe and clean site for development.

Based on NP&V's SONIR model the total annual nitrogen load will increase from an estimated 23.64 lbs./year to 370.37 lbs./year and total recharge will increase from 35.08 mgy to 51.32 mgy. Overall, nitrate loading is expected to increase from an estimated 0.08 mg/l to 0.87 mg/l once the project is fully operational, which is far below the potable drinking water standard of 10 mg/l used by federal, state and county agencies to regulate drinking water quality.

Based on NP&V's SONIR model, total existing on-site recharge is estimated to be 35.08 million gallons per year (mgy) and future recharge is projected to be 51.32 mgy. The recharge of stormwater on-site and/or in the existing adjacent Town owned stormwater recharge basin to the southeast, which is consistently dry and may have been sized to accommodate development on the subject site, will result in an increase in groundwater volume as compared to existing natural and pervious ground conditions. Due to the deep well-drained soils and significant land area comprising the site, issues relating to suitable permeability, filtering capacity, groundwater storage, and recharge of stormwater on-site are not expected

In past correspondence received from SCWA (**Appendix D**) as well as ongoing meetings, several water quality/water use issues that were raised and discussed are addressed through project revisions. A previous version of the **Conceptual Site Plan** included a gasoline fueling station which has since been eliminated from the plan to ensure the protection of the SCWA wellfield, as this use would have been within the 0-2 year contributing area of the southernmost wells in the Station Road Well Field.[1] SCWA has also previously expressed concern over raised

[1] **Appendix D** includes Source Water Assessment Program maps of the groundwater contributing area to

issues regarding water demand and that peak water demand during the irrigation season must be reduced through xeriscaping, multiple sprinkler heads/zones, and other water saving measures, as well as the potential need for an additional booster pump to provide adequate water supply pressure for the development. Project density was reduced after these comments, and these water supply issues are and will be will be addressed through further coordination with the SCWA to ensure that water supply is protected and adequate water service is available for the proposed project.

Pharmaceuticals - The presence of pharmaceuticals in water has become more of a concern in the United States in recent years. However, when discovered, concentrations are usually very low (parts per trillion) and tend to be most prevalent near medical facilities, nursing homes, feedlots, or facilities that manufacture these substances. Since the proposed assisted living, PRC, and MF apartments will be connected to public sewers, significant impacts at the site from pharmaceuticals are not expected. In addition, SCWA now tests for pharmaceuticals in its water supplies and new programs for the proper disposal of unused and expired drugs which help to prevent or reduce the discharge of pharmaceuticals and personal care products to groundwater have been established. That is, instead of flushing these chemicals down the toilet and discharging them to septic systems, STPs or throwing them in the garbage or dumping them into drains, expired or unused drugs can be turned in at designation "take back" program locations for proper disposal. Take back programs are in their infancy and there are few medication drop-off locations at the current time in Suffolk County with the exception of Suffolk County Police precincts. As information about the program becomes increasingly available, additional demand for more drop-off centers is likely to occur. Finally, as indicated in the 2016 water quality monitoring data for the Distribution Area, none of the pharmaceuticals or personal care products that were tested for exceeded any MCL threshold or even came close to any threshold.

Based on a review of the available information, SCDHS's procedures and protocols for proper management and disposal of pharmaceutical wastes, and the results of the on-going SCDHS water quality monitoring program, no significant impact to human or ecological resources is expected from pharmaceutical contamination in groundwater or the public water supply.

Suffolk County Sanitary Code Article 7, "Water Pollution Control" and Article 12, Toxic and Hazardous Materials Storage and Handling Controls"

The subject property is located within Suffolk County's Central Island Intermediate Zone—Pressure Zone 12 and is located adjacent to SCWA's Station Road wellfield, sharing its northern, southern and easterly property boundaries with the proposed Crest Town Center property. According to Article 7 of the Suffolk County Sanitary Code, "Water Supply Sensitive Areas" are those "[a]reas in close proximity to existing or identified future public water supply wellfields. In general, for the purposes of [Article 7], 'close proximity' is within 1,500 feet upgradient or 500 feet downgradient of public supply wells screened in the Upper Glacial aquifer (**Figure 2-9**). As can be seen in **Figure 2-9**, NP&V conducted some research and was able to determine that wells at the Station Road wellfield are installed within the Upper Glacial Aquifer as confirmed by the SCWA and therefore portions of the site may be considered a Water Supply

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certain wells at the Station Road Well Field provided by SCWA at the meeting of January 25, 2018.

Sensitive Area). Article 7, §760-706 B.5.a. and b., "Deep Recharge Areas and Water Supply Sensitive Area, states that "[i]t shall be unlawful to use or store any restricted toxic or hazardous materials on any premises [within these areas] except as follows:

a. The materials are stored at a service station or similar installation solely incident to the distribution of gasoline, kerosene, diesel oil or other petroleum products for motor vehicular uses and repair; and
b. The facility for such storage is constructed in accordance with the requirements of Article 12 of the Suffolk County Sanitary Code for new construction

(emphasis added)

Since the **Conceptual Site Plan** no longer contains the previously proposed filling station, there will be no underground fuel storage tanks and future land uses will utilize natural gas rather than fuel oil, there will be no land uses on the site that will use, store, generate or dispose of any significant type or volumes of hazardous materials. The Applicant will continue to work with the SCWA to ensure the proper siting and resource protection methods necessary and will work with the Town Planning Board and other involved agencies to ensure that the proposed project, its future land uses and the overall layout of the development will not adversely affect area water supplies.

Construction – There is a low potential for minor groundwater quality impacts during construction due to potential release of oil, hydraulic fluid, diesel or gasoline from construction vehicles and equipment stored and operated on-site which may be washed away by rainwater, or sediment that may have been contaminated during the construction process which may be transported off-site or into drainage structures by wind or rain. Equipment stored on-site for use during clearing and construction activities will be properly maintained to eliminate potential spills or leakage of fluids and reputable contractors will be used for all site work. Sediment will be controlled by watering soils that are temporarily exposed to the elements, if necessary, to control dust, seeding disturbed areas as soon as possible after clearing, installation of catch basin inlet protection as needed, placement of silt fencing around work areas, and use of construction entrance rumble strips to prevent tracking of pebbles and sediment onto streets.

Based on the preceding assessment of surface waters, wetlands and groundwater quality, and in consideration of the available impact mitigation techniques proposed, no significant adverse impacts on the quality of these important resources are expected.

Mitigation

- The site's drainage system will be designed in accordance with Town drainage requirements, and will be subject to review and approval by the Town Engineer and Planning Board.
- The project will connect to an existing tertiary level treatment STP to ensure adequate sewage treatment, including dramatically reduced nitrogen levels in sewage effluent.
- The project also involves the purchase and redemption of a total of 24.35 Pine Barrens Credits ("PBCs") to offset requested development density pursuant to Article XV, "Multifamily Residence Districts," § 85-280, "Density (units per acre)" of the Town Code and a $125,887.50 contribution to the Joseph Macchia Environmental Preservation Capital Reserve Fund for the

commercial component that will preserve environmentally sensitive land within the Central Pine Barrens.

- 24.35$125,887.50The proposed project will be designed to conform to Article 6, "Realty Subdivisions, Developments and Other Construction Projects," of the Suffolk County Sanitary Code regulations, which is intended to protect groundwater quality, by requiring the proposed development to connect to an STP or a private on-site treatment facility that provides advanced wastewater treatment including the treatment of nitrogen.
- The project will connect to the local SCWA water supply to ensure a potable water supply is available to future residents and patrons of site. Water conserving fixtures and efficient irrigation systems in several zones throughout the site will be incorporated into the site development and 11.21± acres or 21.17 percent of the site will remain in a naturally vegetated state, thereby limiting total landscaping and turf coverage. Native landscape species will be used to the extent practicable to reduce the need for watering and fertilizer applications, with total fertilizer dependent landscaping to be roughly 15 percent of the site.
- Precautions will be taken to ensure sediment will not be transported off-site by wind, stormwater runoff or vehicle tracking and strict conformance to grading and erosion and sedimentation control measures and permit requirements will occur during construction activities.
- If required, a SWPPP will be prepared to ensure compliance with water quality and quantity requirements pursuant to Technical Guidance and GP 0-10-001 and Town of Brookhaven requirements. In addition, an erosion control plan will be prepared incorporating the NYSDEC Guidelines for Urban Erosion and Sediment Control.

<u>Ecological Resources</u>

Potential Impacts

Vegetation
The impacts to the ecological resources of a site are generally a direct result of clearing of natural vegetation, increased human activity and associated wildlife stressors, and the resulting loss and fragmentation of wildlife habitat. The majority of the development area is currently wooded/pitch-pine-oak forest. A total of 26.4 acres of this area will be developed with impervious surfaces, including buildings, parking lots, internal streets, driveways, and sidewalks; 11.21 acres of natural vegetation will be retained; and another 15.33 acres of the site will be revegetated with landscaping. Based on the above figures, 49.86 percent of the site will be developed and 50.12 percent will consist of natural vegetation and landscaping.

As previously stated, the NY Natural Heritage Program identified three records of known occurrences of rare or state-listed plants, significant natural communities or other significant habitats on or in the vicinity of the subject site. As described in **Section 2.2.1**, these species are not anticipated to occur on the subject site. However, the state and federally listed endangered plant sandplain gerardia was identified on site and may potentially be impacted by the proposed project. As discussed in **Section 2.2.1**, the presence of this species involves two individual plants which are not expected to persist as the existing habitat changes even under conditions without the proposed project. Under the proposed project the species will be located within the vegetated area between the proposed roadway and the neighboring property. As sandplain gerardia is generally tolerant of moderate soil disturbances and can naturally be found in remnant grasslands. As such, it is anticipated that this species may persist within the buffer area. Since

the habitat is expected to succeed due to infill of the sapling pitch pine and oak species canopy and growth of heath species which are filling in the understory, the open disturbance associated with the installation of the road may improve conditions in support of the two individual sandplain gerardia specimens. Moreover, since sandplain gerardia thrives in disturbed environments, the adjacent SCWA property may meet the necessary habitat requirements, thereby, providing additional nearby habitat for this species. In summary, under existing conditions, the species may not be able to persist but may exist or become established on the adjacent SCWA property. Under proposed conditions, the species will be avoided and conditions may be more favorable for its survival. A sandplain gerardia management plan is provided in **Appendix I-2** of this DEIS. Consequently, no significant adverse impacts are expected to this species.

Wildlife

The habitat within the development area is pitch pine-oak forest. The property may act as a refuge for rare native flora or fauna, and does contain a small population of local birds and mammals, such as chipmunks and eastern cottontails. The proposed project will favor those wildlife species that prefer edge and suburban habitats and those that are tolerant of human activity. Most of the species expected on the property are at least somewhat tolerant of human activity, but others will be impacted by the proposed clearing operation and increase in human activity. It is also expected that particular species of wildlife (particularly avian species) will migrate to undisturbed areas adjacent or near the site as a result of development.

A total of 11.21 acres of natural vegetation are proposed to remain within the development area. Although the proposed 15.33 acres of landscaped vegetation within the development provides less habitat than the existing natural area, the landscaped areas are expected to provide some habitat for some species to remain that are tolerant and/or dependent on human activity and are adapted to surviving in multiple habitat types.

In the short term, lands adjacent to the property will experience an increase in the abundance of some wildlife populations due to displacement of individuals by the construction phase of the proposed project. Mobile species and particularly large mammals such as fox and deer will be expected to find suitable habitat south of the site where larger areas of natural open space currently remain. Ultimately, competition with both conspecifics and other species already utilizing the resources of the surrounding lands is expected to result in a net decrease in population size for most species.

No rare or endangered wildlife species are expected on the site given the habitats present except as described in the appropriate subsections above. The red headed woodpecker and eastern spadefoot toad are the only species potentially expected on site which are listed as special concern species. Although there is documented concern about their welfare in New York State, these species receive no additional legal protection under ECL Section 11-0535. This category is presented primarily to enhance public awareness of these species that bear additional attention (NYSDEC, Endangered Species Unit).

Mitigation

- Native plant species that provide food and shelter to wildlife will be utilized in some of the landscaped areas.
- The loss of pitch pine-oak forest habitat on the property will be partially mitigated by the proposed preservation of 11.21 acres of pitch pine-oak forest within the development area.
- Disturbance will be minimized to the maximum extent practicable, including delineating tree-clearing limits at the site prior to construction in order to avoid inadvertent clearing.
- No known invasive plant species will be utilized, including those species specifically those species listed in Nassau County Local Law 22-2009.
- The two individual specimens of sandplain gerardia will be avoided on the site, and habitat conditions will change as a result of the proposed project such that the conditions are expected to improve for this species, as compared with natural succession which will occur, absent the proposed project. It is recommended that the habitat in proximity to these individual specimens be managed to support the species. A management plan has been prepared for the two individuals and is discussed in Section 3 of this DEIS.

<u>Land Use, Zoning and Plans</u>

Potential Impact

- The requested PDD and NH-H zoning and proposed land uses are inconsistent with the current L-Industry-1 (L-1) zoning and existing land use plans that call for industrial development at the site, requiring a rezoning of the site. This rezoning and conceptual development under the proposed zoning could reduce the supply of industrially-zoned land in the Town and the total number of new industrial jobs that could be created. Nevertheless, there has not been significant demand for industrial development, while demand for projects such as Crest Town Center is generally strong. Also, the proposed rezoning will provide numerous benefits to the community and is consistent with various town planning goals and policies including a plan recommendation that the Town consider whether the zoning of properties are suitable including industrially zoned areas. The proposed action is generally consistent with the following recommended plan policies thereby supporting many of the Town's goals and policies.

    - Providing affordable housing;
    - Supporting and promoting senior citizen housing;
    - Promoting a senior citizen housing stock that is diverse, affordable and flexible;
    - Locating multifamily housing along major roadways and near activity centers and providing a choice of housing types for an aging population and affordable housing for the young;
    - Determining whether current zoning classifications are appropriate;
    - Considering the rezoning of large underutilized industrially-zoned parcels, partly-naturally-vegetated parcels with limited highway access, and areas outside of sensitive hydrogeologic zones as PDDs;
    - Consideration of eliminating inappropriate industrially-zoned surplus properties including those that are located too far from major roadways and other transportation access and are unlikely to be developed;

- Ensuring that work places, shopping, and activity centers are located in close proximity to residences, and that a sense-of-place is created;
- Supporting economic growth;
- Making areas pedestrian-friendly and promoting the use of transit where possible;
- Reinforcing nodes by encouraging infill development and increasing pedestrian connections between the nodes and residential neighborhoods;
- Encouraging mixed uses that blend retail, resident and office uses (offices are not proposed) into coherent planned developments within the nodes;
- Holistically designing development sites to avoid fragmentation and lack of connectivity; and
- Linking developments to existing sewer districts.

Mitigation

- The proposed project will include compatible and complementary land uses as a transition between two residential neighborhoods and bolster the draw of local retail and other businesses in the area.
- The conceptual development will be separated from existing light industrial uses to the north due to the Woodside Avenue ROW and existing and proposed setbacks and buffers on both sides of the highway.
- The zoning and **Conceptual Site Plan** as proposed will provide a mix of needed land uses such as assisted living facilities, retirement housing, a mix of rental housing (studio, one-bedroom and two-bedroom units) for diverse needs as well as affordable housing which meets certain Town housing objectives and the requirements of the Town Code.
- Although only limited industrial jobs will be created by this project, the Proposed Action will provide new employment opportunities including a variety of temporary construction jobs, future site and building maintenance work, full and part-time retail, market, restaurant, retail, warehouse and assisted living facility employment opportunities.
- The project will preclude the establishment of a large or numerous small industrial uses but is otherwise generally consistent with the spirit and intent, as well as key elements of, the Town Comprehensive Plan Update, which recognizes the importance of providing a mix of housing types in the Town, particularly for seniors and the local workforce looking for affordable dwellings.
- Although not technically located within the proposed PDD, the assisted living facility will be integrated into the PDD to enhance the layout and design of the project and support the sustainability of the Crest Town Center.

Community Services

Potential Impacts

Taxes

Many Town and County services and facilities are supported in large part by the revenues generated by property taxes. The Town of Brookhaven and Suffolk County, as well as other local taxing jurisdictions, can therefore be adversely impacted or benefit from development projects depending on the nature of the development.

The Fiscal and Economic Impact Analysis in **Appendix B** contains a detailed assessment of the potential impacts of the proposed rezoning and **Conceptual Site Plan**. For taxing purposes, the total estimated market valuation of the proposed project is $5.5 million. This is based upon the net operating income of each component of the proposed project.[2] After applying a capitalization rate of 0.1 and an equalization rate of 0.90%, the estimated assessed valuation of the zone change and **Conceptual Site Plan** upon full build-out and occupancy is approximately $495,000. At full build-out, the proposed project is projected to generate over $1.6 million in annual taxes. This represents a net increase of over $1.595 million per year when compared to existing site conditions. The distribution of projected tax revenues and the change in tax generation for each taxing district upon completion of the project is shown in **Table 3-4** of the DEIS which is provided below.

Based on the data provided in **Table 3-6** and the detailed information provided in the Fiscal and Economic Impact Analysis (**Appendix B**), the proposed project will increase the distribution of tax ratables throughout the South Country CSD, the Town of Brookhaven and Suffolk County. Moreover, the proposed project will generate immediate construction jobs as well as permanent employment opportunities for Town and area residents. Affordable housing will also be provided. These fiscal and economic impacts are expected to provide an overall benefit to the Hamlet, Town, County and State.

Public Schools

The impact of any project upon the local school district in which it is located depends on the number of school-age children that will be added to the school district by the project, the costs of educating new students, and the property tax revenues that will be generated to address the additional costs of providing educational services for these children. Based on projections using Rutgers demographic multipliers, the proposed multifamily component of the project, which will consist primarily of studio and one-bedroom apartments and some two-bedroom apartments, is expected to generate an additional 22 school-age children, 20 of whom are expected to attend public schools. These children will be distributed over grades k-12 and will attend the public schools of the South Country CSD. It is noted that the proposed project was modified in response to prior comments from the South Country CSD, in order to reduce the number of school aged children and increase tax ratables. More specifically, the prior proposed project was projected to generate 27 school aged children and result in a surplus of $637,000 after considering the cost of education, while the proposed project will generate 20 school aged children and result in a surplus of over $760,000. Analysis is provided herein.

[2] Net operating income of $2,000,000 for the residential component of the project, $2,000,000 for the commercial component of the project, and $1,500,000 for the assisted living component of the project provided by Crest Bellport, LLC, in December 2017.

ANTICIPATED TAX REVENUE GENERATION

Taxing Jurisdiction	Current Tax Revenue	Projected Tax Revenue	Change in Tax Revenue	Percent of Total Tax Revenue
School Taxes	**$59,363**	**$1,179,026**	**$1,119,662**	**70.2%**
South Country Central School District	$56,162	$1,115,438	$1,059,276	66.4%
South Country Central School District - Library	$3,202	$63,588	$60,386	3.8%
County Taxes	**$10,547**	**$209,479**	**$198,932**	**12.5%**
Suffolk County	$634	$12,598	$11,963	0.7%
Suffolk County - Police	$9,913	$196,881	$186,968	11.7%
Town Taxes	**$5,811**	**$115,409**	**$109,598**	**6.9%**
Town - Town Wide Fund	$1,278	$25,389	$24,110	1.5%
Highway - Town Wide Fund	$365	$7,242	$6,877	0.4%
Town - Part Town Fund	$506	$10,058	$9,552	0.6%
Highway - Part Town Fund/Snow Removal	$3,661	$72,720	$69,059	4.3%
Other Taxes	**$8,851**	**$175,789**	**$166,938**	**10.5%**
New York State MTA Tax	$36	$713	$677	0.0%
2004 $100M Bond Act and Open Space	$486	$9,648	$9,162	0.6%
Brookhaven Fire Districts	$5,278	$104,831	$99,553	6.2%
Brookhaven Lighting Districts	$308	$6,113	$5,805	0.4%
South Country Ambulance District	$1,863	$37,001	$35,138	2.2%
Real Property Tax Law	$717	$14,241	$13,524	0.8%
Out of County Tuition Tax	$163	$3,242	$3,079	0.2%
TOTAL: ALL TAXING JURISDICTIONS	**$84,572**	**$1,679,703**	**$1,595,131**	**100.0%**

Source: Town of Brookhaven Receiver of Taxes; Analysis by Nelson, Pope & Voorhis, LLC.

Increases in enrollment can affect school capacity, the sizes of classrooms, and costs; however, despite this anticipated increase in the cumulative enrollment within the school district, the district enrollment has actually decreased by 213 students, over the ten (10) year period between the 2006-07 and 2016-17 school years. Moreover, the ability of a school district to handle increased demand for educational services depends primarily upon the adequacy of long-term planning within the district, in combination with increased tax revenue generation to strengthen the tax base of the district and finance the new students' education.

Since the proposed project consists primarily of an assisted living facility, PRC, commercial development and mostly small apartments (primarily a combination of studio and one-bedroom apartments (100 units total) and 60 two-bedroom units), a limited number of school-aged children are expected at the site. The proposed 60 two-bedroom apartments are for the most part the only potential generator of school-age children at the site as the total number of bedrooms in these units is so limited and others will be occupied by "empty-nesters." After meeting with representatives of the school district, the total number of two-bedroom MF dwelling units was reduced by one-third from 90 units to 60 units; while the number of PRC units, which will be age-restricted and not house school-age children, was increased to make up the difference. Despite the small overall increase in school enrollment, this increase will be offset by considerable tax revenues that should result in an actual surplus from the project.

As seen in **Table 3-6**, the proposed project is anticipated to levy tax revenues for the South Country CSD, estimated to total over $1.17 million per year. These property tax revenues will cover all projected associated expenses incurred by the 20 children to attend public schools, resulting in a net surplus of revenue to the school district of over $760,000 per year. This net increase in revenue could ease the district's need to tap additional fund balances and could also help alleviate an increased burden on other taxpayers in the district. This is shown in **Table 3-7** of the DEIS which is included below:

FISCAL IMPACT ON SCHOOL DISTRICT

Parameter	General Education	Special Education	Total: All Students
Student Enrollment: Existing Conditions	4,371	662	5,033
Percentage of Enrollment: Existing Conditions	86.8%	13.2%	100.0%
Number of Additional Students in Public Schools: Proposed Project	17	3	20
Expenditure per Pupil: Existing Conditions	$12,596	$47,059	--
Additional Expenditures: Proposed Project	$214,132	$141,177	$355,309
Projected Tax Revenue Allocated to School District: Proposed Project	--	--	$1,115,438
Net Additional Revenue	--	--	$760,129

Source: South Country CSD; New York State Education Department; Analysis by NP&V.

Police Protection

The project site is located within the jurisdiction of SCPD's Fifth Precinct. A letter was sent to the Precinct on December 27, 2017 and an updated letter based on the revised plan was mailed June 13, 2018 informing it of the location, type, and scale of the pending project, and requesting input regarding the Precinct's ability to serve the development and any issues and concerns it may have. The SCPD responded in a June 25, 2018 letter indicating that the subject site within the Fifth Precinct's jurisdiction but did not indicate any issues or concerns regarding its ability to serve the property in the future (**Appendix D**).

It is expected that the project will increase annual tax revenue to the SCPD from the $9,913 to $196,881 for a total increase of $186,968. This increase will help to offset the costs of providing occasional police services at the site.

Fire Protection

Development of the proposed project will incrementally increase the potential need for the services of the Brookhaven Volunteer Fire Department. Project construction will include the use of approved building materials and fire safety infrastructure per the NYS Building Code and the NYS Fire Safety Code. The project will be planned with suitable access for emergency vehicles and will include installation of fire hydrants if and where required during the site plan review process.

On January 3, 2018, a letter was sent to the Brookhaven Fire District requesting general background information about the District, an assessment of its ability to serve the proposed

project, and whether it had any concerns over the project. No response was received. An updated letter, based on the revised plan, was subsequently mailed to the Department on June 13, 2018 (**Appendix D**).

The proposed project is expected to increase annual property tax revenue to the Brookhaven Fire District by $99,553 from the existing $5,278 to $104,831. This increase will help to offset for the costs of providing increased fire protective services associated with the development. It is noted that all construction will meet applicable building and fire codes designed to assist with fire control. Based on the anticipated tax revenues, proposed building methods, and prior outreach to the Fire District, no adverse impacts to the Brookhaven Fire District have been identified.

Ambulance and Medical Services
The project site is within the South Country Ambulance Company service district. A letter dated January 3, 2018 was sent to the Ambulance Company requesting its input regarding any issues or concerns it may have with respect to the project and its ability to properly serve the site and future development on the site in the future. No response was received. An updated letter based on the revised plan was later mailed to the Ambulance Corps (**Appendix D**).

It is expected that the **Conceptual Site Plan** will result in an increase in annual property tax revenue to the South Country Ambulance District from $1,863 to $37,001 for an increase of $35,138. This increase is expected to offset the costs of providing fire protective services to the development.

Water Supply
The project will utilize public water which will be supplied by the SCWA via connections to existing 12-inch water mains located along abutting street rights-of-way (Woodside Avenue, Station Road and the North Service Road of Sunrise Highway). The total water requirement for the project has been conservatively estimated to be 119,879 gpd which includes an estimated 95,614 gpd for domestic/operational purposes, as well as an estimated average site landscape irrigation demand of 24,265 gpd averaged over the course of a year. The current water consumption within the water supply area will therefore be increased and could place strain on the system. Meetings with SCWA regarding water demand and protection of the local water supply included recommendations from SCWA for landscaping that has limited need for watering, establishing fewer irrigation zones and using more sprinkler heads in each zone, considering the installation of a cistern for site irrigation so that flow can be regulated so it occurs during off-peak times, and other possible means to minimize water use during summer months. The Applicant has also abandoned previous plans for a fueling station at the site based on concerns raised by the SCWA (see SCWA letter and attachments in **Appendix D**) and provided a plan that consists of relatively clean/non-hazardous uses that will connect to public sewers. It is noted that the prior water demand was reduced from 123,043 gpd to 119,879 gpd since the first correspondence with SCWA, as a result of changes in the proposed project.

The SCWA provides potable drinking water to its customers, based on established user fees rather than through property tax assessments. Future occupation of the site will therefore be required to pay its share of water delivery costs based on the volume of water used and user fees.

The Applicant is committed to working with the SCWA and other applicable agencies in ensuring that the project will not adversely affect the environment, including area groundwater supplies. A follow up letter dated was sent to the SCWA requesting further input on the revised project plans and meetings were held to further discuss the project and any potential impacts.

Wastewater Treatment and Disposal

The **Conceptual Site Plan** is expected to generate an estimated 95,614 gallons of wastewater per day (gpd). Due to the proposed density of this development, the anticipated volume of wastewater flow, the predominantly residential nature of the land uses, and its location within Suffolk County Groundwater Management Area VI, all sewage generated at the site must be discharged to an Sewage Treatment Plant (STP). The subject site lies directly adjacent to and between two (2) sections of the existing Suffolk County Sewer District (SCSD) #7, Medford and sewer pump station exists adjacent to the site. The applicant proposes an out-of-district connection to the Twelve Pines STP, located on the south side of Woodside Avenue, 300 feet west of Pine Gate and 850 feet east of Sipp Avenue. This STP is part of SCSD #7. Contact has been made with the Suffolk County Sewer Agency (SCSA), an agency within the Suffolk County Department of Public Works (SCDPW), and the project team has been advised that treatment capacity currently exists at this facility, subject to an application for Conceptual Certification to be submitted to SCSA and full wastewater engineering and SCDHS/SCDPW applications to be completed at the time of site plan review. Currently, the Twelve Pines STP has a design flow of 0.83 million gallons per day and an average annual operating flow of 0.5 mgd indicating a residual capacity of 0.33 mgd (US Environmental Protection Agency, 2018). Since the proposed action is expected to generate a maximum of 95,614 gpd or 0.0956 mgd, considerable excess capacity is available to serve the project.

Connection to the STP will be at the existing pump station located adjacent to the southeasterly property line of the subject site, known as "Pump Station #5," which is part of SCSD #7. The sanitary design for the proposed development will be completed at the time of Site Plan review including a main to convey wastewater generated on the property to the existing pump station. The pump station will pump wastewater to the west across the subject property to Station Road, then north along Station Road to Woodside Avenue, and west along Woodside to the Twelve Pines STP using all existing sewer mains of the district. The total distance to the STP is estimated to be 8,900 linear feet. The route of the existing sewer mains are depicted in **Figure 1-3**. The applicant has submitted an application and applicable supporting information to SCSA for Conceptual Certification and awaits the SCSA's final decision. Pump station sizing and final alignment of buildings on the site will be adjusted during Planning Board review.

Parks, Open Space and Recreational Facilities

On-site recreational areas and open space will be provided to serve the MF and separate PRC components of the project. The MF project will provide a 38,000± SF recreation area that will contain a recreational building and swimming pool; the 76-unit PRC development will have 124,000± SF of dedicated recreational space that will also include an outdoor swimming pool and recreational building; and the 30-unit PRC development will have its own +6,000 SF of recreational space bringing the total recreational space to 168,000±SF (3.86± acres). Also, as previously noted, the project will involve the purchase and redemption of PBCs and a donation to

the Joseph Macchia Environmental Preservation Capital Reserve Fund to preserve public open space in the Central Pine Barrens and other public recreational facilities are available within 1,500± feet to one-mile from the subject site). These parks and recreational facilities include: Twelve Pine Parks, Martha Avenue Recreational Park and the Town of Brookhaven's Model Airplane Park.

A network of sidewalks which will provide safe and convenient pedestrian access will also be provided throughout the site to facilitate pedestrian activity, and greater land use connectivity, as well as to provide passive recreational opportunities.

Energy Supply
PSEG Long Island is the public utility that provides electrical power to the region and above and below ground electrical utilities are currently available along Station Road. National Grid is the natural gas provider in the area. An eight-inch National Grid gas main currently exists along Station Road and a six-inch main is located along Woodside Avenue. Letters were sent to PSEG Long Island and Natural Grid on December 27, 2017 to confirm that they will supply the necessary electrical and natural gas utilities. A letter dated February 22, 2018 was received from PSEG LI stating that they "will provide service to the above-referenced project in accordance with [its] filed tariffs and schedules in effect at the time of service." A second updated letter reflecting changes to the plan was subsequently mailed to PSEG Long Island on June 13, 2018, informing them of the proposed changes.

With regard to National Grid, a response to the December 27, 2017 letter was never received, so a second letter, dated June 13, 2018, was sent to the utility. Both utilities routinely provide service to developments on Long Island when facilities are present in the service area in accordance with their filed tariffs and schedules in effect at the time service. Connections will be made to each utility through the creation of an internal distribution network within the proposed development. It is anticipated that both of these energy supply companies maintain adequate resources to supply the proposed project and that service will be able to be provided. In addition, energy saving devices will be utilized where practical to reduce the total energy demand that will be required by the project site upon completion.

Solid Waste Disposal
The proposed project is expected to generate an estimated total of 10,664.2± lbs. of solid waste per day (5.33± tons/day) based on a conservative (high) estimate that assumes 4 lbs. per resident per day for apartments and PRC units; 5 lbs. per bed per day for nursing homes; 0.13 lbs. per square foot of gross floor area (GFA) per day of retail space; 0.09 lbs. per square foot of GFA per day for restaurant space; and 0.012 lbs. per square for of GFA per day for industry and storage facilities (Salvato, 2009). Due to the operational nature of the land uses (residential, retail, restaurant, market health club) it is not expected that the solid waste stream will contain significant amounts of potentially toxic or hazardous materials, other than empty household/business cleaning fluid containers. The NH-H facility will be responsible for handling and disposing any potential materials such as pharmaceuticals and medical or biological wastes, as applicable, in accordance with relevant State and/or County waste pickup and disposal requirements and oversight. See also **Section 2.2.2** for a discussion of pharmaceuticals and groundwater impacts.

The Town does not provide solid waste collection services to commercial, industrial or multi-unit residential developments in the Town. In these instances, the property or business owner must contract with a private carter for solid waste removal and disposal services. The Town does, however, have a mandatory source-separation ordinance that requires property owners or business managers to recycle the wastes they generate on-site. The Town accepts solid wastes and recyclables from private carters at the Town facility in Yaphank, for a fee. Residents can also drop-off wastes at the Town facility such as household hazardous wastes through the Town STOP Program (Stop Throwing Out Pollutants).

Mitigation

- Adherence to the NYS Fire and Building Codes will increase the level of safety from fires. In addition, fire/smoke alarms in all of the units and the HOA recreational buildings will assist in minimizing the incremental increase in demand for fire protective services. Hydrants will be installed if, as and where required by the Town and Fire Marshal to ensure that an appropriate water supply is available for firefighting purposes.
- Planting of native or non-water dependent (xeric) landscaping, retaining nearly 25 percent of the site in its existing natural condition, using efficient irrigation systems, establishing a suitable number of irrigation zones, installing more sprinkler heads in each zone, consideration of installing a cistern for site irrigation so that flow can be regulated to occur during times other than peak demand, and possible means to minimize water use during summer months will help reduce water demand. Low-flow/water conserving toilets and fixtures will be installed.
- The project site will connect to the available local water supply and the Applicant will continue to work with the SCWA to fulfill its requirements for protecting the adjacent wellfield and reducing overall project demand.
- Subject to requisite approvals, sanitary waste generated on the subject site will be conveyed treated and disposed at SCSD No 7's Twelve Pines STP. The project will have a significant beneficial impact on the South Country CSD as the projected cost to educate 17 general education students and 3 special education students is $355,309 and the projected CSD revenues from the project will be $1,115,438 for an estimated annual CSD surplus of $760,129.
- Common areas will be maintained privately.
- It is anticipated that sustainable energy-conserving measures, including energy-saving wall insulations, triple-glazed windows and energy efficient mechanical systems will be utilized, thereby mitigating the anticipated increase in energy consumption.
- Use of some native or well-adapted plants will be used to reduce irrigation, and fertilizer and pesticide demands.

Transportation

Potential Impacts

Nelson & Pope investigated the potential traffic impacts associated with the proposed mixed-use development to be located on the east side of Station Road spanning from Woodside Avenue (CR 99) to NY27 North Service Road, Suffolk County, New York. Access to the site will be provided via five (5) driveways with a mix of full and restricted accesses. The site is currently undeveloped. The following is a summary of this investigation and the findings thereof:

1. The following intersections were studied:
    - Sills Road (CR 101) at Station Road
    - Woodside Avenue (CR 99) at Station Road
    - Woodside Avenue (CR 99) at Sawgrass Drive/S Village Drive
    - Farber Drive at Station Road
    - NY27 North Service Road at Station Road
    - NY27 South Service Road at Station Road
    - NY27 North Service Road at NY27 Exit 56 Westbound Ramp

2. Existing traffic volumes were counted in April 2017. Future No Build traffic volumes were determined by applying a 2.0% NYSDOT annual growth factor to the existing traffic volumes projected to 2020, the anticipated build year. The site-generated traffic was estimated and distributed to the study intersections and then added to the No Build traffic volumes to generate the future Build traffic volumes.
3. The proposed mixed-use development generate is anticipated generate 258 new trips (112 entering and 146 exiting) during the weekday AM peak hour, 322 new trips (188 entering and 135 exiting) during the weekday PM peak hour and 291 new trips (149 entering and 142 exiting) during the Saturday midday peak hour.
4. Capacity analyses were conducted at all study intersections during the weekday AM, weekday PM and Saturday midday peak hours for the 2017 Existing Condition, 2020 No Build Condition and 2020 Build Condition.
5. The signalized intersections of Woodside Avenue (CR 99) at Sawgrass Drive/S Village Drive and Farber Drive/Driveway at Station Road are projected to continue operating at No Build LOS during all peak hours.
6. Impacts associated with the proposed project will be mitigated at the remaining signalized intersections by performing timing adjustments. A modification of the cycle length and timing modifications are proposed at the intersection of the NYS 27 South Service Road at Station Road during the Saturday midday peak hour only. Upon implementation of the mitigation measures detailed in the body of the report, these intersections will return to operating at No Build LOS.
7. With the construction of the proposed project, all but one of the individual turning movements for the site driveways are anticipated to operate at LOS B or better. The westbound left-turn movement of the Station Road access is anticipated to operate at LOS D during the AM peak and at LOS E during the PM and Saturday peak periods.

Based on the results of the Traffic Impact Study as detailed in the body of this report, it is the professional opinion of Nelson & Pope that, constructing the proposed mixed-use PDD with the implementation of the proposed signal timing modifications will not result in any adverse traffic impacts in the study area.

Mitigation

Based on the results of the Traffic Impact Study as detailed in the body of this report, it is the professional opinion of Nelson & Pope that, constructing the proposed mixed-use PDD with the implementation of the proposed signal timing modifications will not result in any adverse traffic impacts in the study area.

Noise, Odors and Outdoor Lighting

Potential Impacts

Noise
In comparison to its current vacant state, unavoidable short-term noise impacts will result from construction on the site. In addition, the development of the property will result in a change in the ambient noise levels with noise generated by property maintenance and vehicle movements in the interior roadways and parking areas, and other human sources. The proposed uses are of the type that is more compatible with the residential uses to the east and west as compared to light industrial uses permitted by existing zoning. In addition, the proposed change of zone will inherently reduce levels of maximum noise generated by portions of the site under the code; since industrial uses are permitted to generate higher noise levels in comparison to the multifamily and senior housing units proposed on the site.

Construction Related Noise
Construction on the project site will involve site preparation operations (grading and clearing, excavation utilizing bulldozers, excavators, front-end loaders and similar earth moving equipment) and construction/building activities (involving trucks and use of stationary equipment/generators such as cement mixers/spreaders). Noise levels will vary based on the construction phase, but typically heavy equipment utilized during the site preparation phase results in the highest levels of noise associated with development. Sound levels during construction are intermittent as well as variable depending on the type of work being completed during various phases of the construction process.

Construction noise is inevitable in the short term and will be audible to surrounding residents; however, this impact is unavoidable and will be mitigated by limiting construction during hours proscribed by the Town of Brookhaven Code in Chapter 50. It is further noted that construction noise will occur regardless of what use is developed on the site in the future and as a result, the change of zone itself will not change the potential for construction related noise. Construction-related activity is exempt from the maximum sound levels as long it occurs between 7 AM and 6 PM. Contractors will be required to limit the hours of construction to within the period 7 AM to 6 PM on weekdays only (no construction activity is permitted on weekends and holidays) under Chapter 50 of Town Code.

Noise Generated on Site Following Construction
It is expected that noise from vehicles on local arterials and Sunrise Highway will continue to be the dominant source of noise in the area following construction. As with any developed site, there is the potential for generation of periodic noise related to site activities following development of the site as a mixed-use development that includes a housing community, assisted living facility, self-storage and retail uses. The most common sources of intermittent noise generating activities will be related to vehicular access to the new development, vehicles driving on the interior driveways, and maintenance of landscaping on the site. These were analyzed and are discussed in the paragraphs below. A noise attenuation worksheet, which provides the values and calculations utilized for each source and station, is provided in **Appendix M**.

- Maintenance of common lawn/garden areas. The nearest common areas to be landscaped to residential property lines are located at various distances from property lines ranging from 80 feet for properties opposite the proposed retail on Station Road represented by Station 5 to 300 feet at Station 3 which generally represents properties on the east side of South Village Drive. Attenuation of sound level is provided with distance, predicted by application of the inverse square law and accounting for the intervening area of woods to remain between the new development and property lines. Use of a diesel-powered lawn mower was assumed as a worst-case scenario which operates with a higher sound level than gasoline or hybrid mowers. When adjusted source levels are combined with the lowest ambient level for morning levels based upon monitoring results, the levels range between 59.4 dBA at Station 3 to 67.4 dBA at Station 5 which are far below the maximum of 85 dBA permitted by Town Code (as long as the maintenance occurs between 8 AM and 8 PM on weekdays).

- Motor vehicles. The analysis includes an assessment of combined noise for a common source of noise – the use of motor vehicles within the site. For each station, a realistic number of vehicles was inputted in consideration of the site location (entrance as compared to parking area). The sound levels associated with normal motor vehicle activity is not expected to result in a noticeable change in the noise environment, as it is consistent with existing sources in the vicinity. However, the analysis performed illustrates that at the property lines, the sound levels range between 50.6 for Station 2 and 63.1 at Station 4. This analysis was not prepared for Station 5 due to the high level of vehicular traffic on Station Road which will make movement within the site indiscernible from background levels.

In summary, the only regularly occurring sources of noise which may be audible to nearby residents related to the long-term use of the property is expected to be associated with vehicular ingress and egress from the development and movement within the site. This traffic will proceed at low speeds and will not cause a perceptible increase above ambient noise, particularly due to the vehicle traffic consisting mainly of passenger cars. Other than maintenance of lawn and garden areas on the site, planned retirement communities, assisted living facilities, and the envisioned nonresidential uses to occur indoors are typically quiet in their operations, and any occurrence of loud sounds will be random and intermittent as is the case with any development. In comparison, the property is zoned for industrial use, which typically involves trucking, manufacturing, and potential for outdoor uses which could generate noise in the long term. Based on the above analysis and lack of necessity to implement noise mitigation proposed, no noise-related impacts are expected.

Odors

The Proposed Action involves the rezoning of the subject property from L-1 Industry to a mixed-use PDD consisting of multifamily residences, PRC housing, a small mini-storage warehouse, a restaurant, retail, a health club, and an NH-H zone which will contain an assisted living facility. None of the proposed land uses are expected to generate significant adverse odors. The only land use that may generate odors will be the proposed restaurant which may emit minor pleasant odors from time to time from the preparation of meals. With regard to the potential loss of minor and potentially pleasant odors related to mixed oak-pitch pine forest, 11.21± acres of this forest will be retained intact and another 15.33 acres of the site will be landscaped.

All wastewater will be discharged to the Twelve Pines STP and will be discharged into the ground at that facility after treatment and stormwater will be properly controlled in accordance

with Town requirements. While it is unknown what type of land use may be established at the site in the future if the property is not rezoned, it is more likely that an industrial land use will generate objectionable odors than the proposed project with its potential mix of land uses. Based on this information, significant odors from the subject action are not anticipated.

Outdoor Lighting

The subject property is currently undeveloped woodland and therefore does not contain any outdoor lighting. Future site development will, however, require considerable exterior lighting across the nearly 53-acre site to ensure public safety and site security on each development site, along interior streets and walkways and within parking lots. Although nighttime outdoor lighting is a necessary component of human developments, excessive outdoor lighting or improperly located and designed lighting can result in a variety of environmental impacts, such as glare, light trespass, skyglow (a condition that affects views of the night sky), energy consumption, aesthetic and community character impacts from poor color rendering or fixture and pole selections, and effects on wildlife, particularly nocturnal species. Land uses near the Crest Town Center that may be sensitive to outdoor lighting include nearby residential land uses and the rights-of-way of public streets and highways which must be protected from glare and excessive spillover of errant light. Future uses on the subject property, especially residential uses, can also be affected by outdoor lighting on the site.

Once the proposed rezoning is approved, a detailed site plan will be prepared including an outdoor lighting plan and these plans will be submitted to the Town Planning Board for review and approval. The lighting plan will be prepared by a qualified professional and will comply with the standards and requirements of the Brookhaven Town Code § 85-862, "Exterior lighting standards," and 85 Attachment 8, "Guidelines for Exterior Lighting." The Town Code and routine lighting reviews by the Planning Board and Town staff address the lighting impacts noted above through numerous standards and specifications such as requirements that:

- lighting be directed downward and/or "cut off" fixtures or other methods of light shielding be used;
- outdoor lighting be properly located and spaced relative to appropriate fixture height and yard setbacks to prevent light trespass and skyglow;
- suitable bulb types and levels of illumination (lumens) are provided based on the proposed use and site needs and that light be cast only where and as necessary to ensure a safe and secure environment; and
- energy is conserved by using automatic timers, photovoltaic sensors, energy efficient bulbs that illuminate at appropriate levels, and proper fixture heights and spacing to provide necessary lighting and minimal lighting impacts.

The applicant will work closely with the Planning Board during Site Plan review to provide a quality outdoor lighting plan that is consistent with Town lighting standards and mitigates impacts to the maximum extent practicable.

Mitigation

- The applicant will work closely with the Town Planning Board and submit exterior lighting plans that will conform to Brookhaven Town Code § 85-862, "Exterior lighting standards," and 85 Attachment 8, "Guidelines for Exterior Lighting."
- While no unavoidable noise impacts are anticipated, the following mitigation is inherent in the proposed action:
    - The site preparation and construction will inevitably result in elevated noise for neighboring properties. Strict adherence to time periods when construction related noise is exempt from the maximum permitted levels including in Chapter 50 (Noise) will minimize construction related noise impacts.
    - Adherence to hours for maintenance of common areas will occur between the hours of 8:00 AM and 8:00 PM on weekdays and 9:00 AM and 8:00 PM on weekends and legal holidays as required by Chapter 50 of the Town of Brookhaven Code (Noise) with equipment generating less than 85 dBA as measured at any residential property line.
    - Future residents and visitors will be required to adhere to Chapter 50 of the Town of Brookhaven Code (Noise) which will restricts sound levels generated by the occupants or visitors of the residential portions of the development to 55 dBA from 7 AM to 10 PM and to 50 dBA from 10 PM to 7 AM and to 65 dBA from 7 AM to 10 PM and to 50 dBA from 10 PM to 7 AM in future commercial areas of the property.

<u>Alternatives</u>

SEQRA requires every DEIS to consider reasonable alternatives to the proposed action. This phase of environmental review provides the context and framework for identifying, describing, comparing and contrasting feasible project alternatives. Investigations of alternatives is an integral part of the land use planning and impact identification and mitigation processes as they provide for a broader understanding and evaluation of issues and create a foundation for more informed decision-making by the Lead Agency and other involved agencies. Alternatives may include changes to a project's location, size, scale, design, layout, density, intensity, alignment, orientation, technologies, methodologies, timeframes, phasing, or other modifications that are reasonable considering the objectives and capabilities of the project sponsor.

SEQRA also requires the DEIS to contain a comparative assessment of what it refers to as the "No Action Alternative." The No Action alternative provides the basis from which to identify, characterize and assess future conditions and possible impacts and benefits that are likely to result in the reasonably foreseeable future in the absence of any new projects, land use(s), site disturbances, and construction or other activities. The alternatives considered for the subject action are as follows:

Alternative 1: ("No Action Alternative"). Alternative 1 is the "No Action Alternative" which is required by SEQRA for DEISs. The No Action Alternative is intended to identify the conditions that currently exist on a site and that may be expected in the foreseeable future if no action is undertaken. The No Action Alternative provides the groundwork for an assessment of anticipated future impacts and benefits under current conditions and a foundation for comparing and contrasting a Proposed Action with *status quo* conditions.

Since the subject property currently consists of undeveloped and unused woodlands, it is assumed for the purposes of this analysis that the property will remain in its current natural condition with no future development or on-site activities.

Alternative 2: ("Buildout Under Existing L-1 Zoning" aka "As-of-Right Alternative"). Alternative 2 provides an assessment of a reasonable as-of-right buildout of the subject site under its existing L-Industry-1 (L-1) zoning. This alternative assumes a site development with a total yield of 501,080 SF of mixed L-1 uses, including light industry, warehouse/storage, associated industrial office space, a medical office building, other non-medical/non-industrial office space, and a bank.

SECTION 1.0

DESCRIPTION OF THE PROPOSED PROJECT

1.0 DESCRIPTION OF THE PROPOSED PROJECT

1.1 Introduction

This document is a Draft Environmental Impact Statement (DEIS) which provides detailed supplemental environmental information and analyses for the proposed Change of Zone and development known as "Crest Town Center" per the Town Board of the Town of Brookhaven, as Lead Agency's, May 7, 2018 Positive Declaration Determination of Significance (**Appendix A**). The project site consists of 52.95 acres of undeveloped land which is located on the north side of New York State Route 27 (Sunrise Highway) and south side of Suffolk County Route 99 (Woodside Avenue) between Station Road and South Village Drive in the Hamlet of North Bellport, Town of Brookhaven, Suffolk County, New York. **Figure 1-1** provides a location map of the project site *(all figures are located in the section following the main text of this document).*

The applicant, Crest Bellport, LLC, seeks Town Board approval to rezone the subject 52.95-acre property from L-Industrial-1 (L-1) to a mixed-use Planned Development District (PDD) and Health Facility District (NH-H). The requested changes of zone which are filed under one Change of Zone application seek to create a 48.46-acre mixed-use PDD and a 4.49-acre assisted living facility under NH-H zoning on the 52.95-acre property.

This document describes the proposed project, outlines its benefits, identifies anticipated environmental impacts, considers project alternatives, and determines appropriate mitigation measures to avoid or alleviate potential impacts to the maximum extent practicable as required by 6 NYCRR Part 617, New York State Environmental Quality Review (SEQRA). This DEIS is intended to provide essential information and analyses that are necessary for the Town Board, as the Lead Agency for this SEQRA review, to render an informed decision on the merits and environmental implications of the proposed application and take a "hard look" at the potential environmental effects of the project as required by SEQRA. Environmental impacts that are examined by this DEIS include those potential impacts identified by the Town in its May 7, 2018 Positive Declaration Determination of Significance (**Appendix A-2**) and the duly adopted Final Scope, dated July 24, 2018 (**Appendix A-3**). Topics for review in this DEIS as identified by the Determination of Significance and Final Scope include potential impacts on land; surface water; groundwater; plants and animals; open space and recreation; transportation; energy; noise, odor and light; human health; community services; consistency with community plans; and cumulative impacts. Impacts identified by this DEIS are examined in detail in **Section 2.0**, "Natural Environmental Resources," and **Section 3.0**, "Human Environmental Resources," and are summarized in the **Executive Summary**, along with recommended impact prevention and mitigation strategies.

1.2 Project Background, Need, Objectives and Benefits

1.2.1 Project Background

This DEIS has been prepared by the applicant as a supplement to the Long Environmental Assessment Form (EAF) Part 1 (**Appendix A**) and previous Expanded Environmental Assessment Form document, as it provides updated information on the proposed project as well

as additional information, descriptions, discussions and analyses of existing conditions and those potential impacts of the project that may adversely affect the environment. The DEIS has also been prepared based on guidance from the Town's duly adopted May 7, 2018 Determination of Significance (i.e., "Positive Declaration"), the DEIS content requirements set forth under Section 617.9 of SEQRA and the Final DEIS scope for the project, following the June 18, 2018 public scoping session. This document also provides an analysis of the potential environmental impacts of future development of the property under the proposed zoning ("Proposed Action"), a development scenario under the existing zoning ("Development under Existing (L-1) Zoning" or "As-of-Right Alternative"), as well as if no future actions were taken whatsoever ("The No Action Alternative") in order to establish a comparative assessment of potential impacts.

1.2.2 Public Need and Municipality Objectives

The proposed rezoning and future development will provide assisted living facilities; residences for retirees; multifamily apartments for singles, couples and small families; and mixed business uses that will offer existing residents the opportunity to remain in the community (in proximity to family and friends). The future development of the site will have convenient access to certain essential goods and services and will provide construction jobs as well as new full- and part-time employment opportunities once the project is completed. Ten (10) percent or 16 of the proposed MF units and 11 PRC units are proposed to be marketed as "affordable" or "workforce" housing units in accordance with § 85-167, "Affordable and Workforce Housing," "Development requirements," of the Brookhaven Town Code and Article 16-A of the New York State (NYS) General Municipal Law (Long Island Workforce Housing Act). Therefore, a total of 27 affordable or workforce units will be provided. The proposed mix of residential uses will help to diversify the housing stock in the area, not only from a mixed cost/rent perspective but also by providing housing for the elderly and/or disabled who need care and assistance in their daily activities, retired empty nesters, young adults, couples, and some small families.

The proposed development will make productive use of a currently vacant and underutilized property and will help to generate considerable property tax revenues to pay for required services and support local taxing districts. At full build-out and taxation, the proposed project is projected to generate over $1.6 million in annual taxes. This represents a net increase of over $1.595 million per year, compared to existing site conditions. The proposed project is also anticipated to levy tax revenues for the South Country Central School District (CSD) estimated to total over $1.179 million per year. These property tax revenues more than cover the associated expenses incurred by CSD from the projected 22 school-age children that are expected to inhabit the development, 20 of whom are expected to attend public schools, resulting in net surplus revenue to the school district of over $760,000 per year. This net revenue is expected to ease the district's need to tap into additional fund balances and could also help alleviate an increased burden on other taxpayers throughout the district. Project fiscal and economic benefits are described in detail in **Section 3.2** and a full **Fiscal and Economic Impact Analysis** is provided in **Appendix B**.

The project also includes the purchase and redemption of a total of 24.35 Pine Barrens Credits ("PBCs") to offset requested development density pursuant to Article XV, "Multifamily Residence Districts," § 85-280, "Density (units per acre)" of the Town Code and a $125,887.50 contribution to the Joseph Macchia Environmental Preservation Capital Reserve Fund pursuant

to Chapter 85, §85-82 for the commercial component. 24.35$125,887.50This approach to environmental protection, not only protects critical natural resources in target areas by preserving land in Long Island's Central Pine Barrens in their natural state (through direct credit purchase and payment into the Macchia Fund), but also allows development rights to be transferred from these resource rich areas to locations that have been identified as more suitable for development and that are zoned for appropriate economic development.

The mixed-use PDD will conform as much as possible to applicable dimensional zoning requirements noting that the purpose of the PDD is to provide flexibility for uses and dimensional requirements to achieve integrated and balanced design. Since the NH-H district is not a listed district under a PDD, a separate change of zone is needed; however, the NH-H use will still be integrated into the overall development. As a result, variances will be necessary to accommodate the unique and beneficial layout and essential services to be provided by the NH-H.

The project is consistent with various components of the Town's Comprehensive Land Use Plan and the Greater Bellport Land Use Plan (see **Section 3.1**). The **Conceptual Site Plan** (attached to the back cover of this DEIS) has been modified and improved from an environmental perspective in response to Town and agency comments on the original concept plan, as compared to the initial submission. The currently proposed **Conceptual Site Plan** is also designed to be compatible with existing adjacent development and/or will have appropriate transitional area, setbacks, buffers and landscaping and design to be integrated into the fabric of the surrounding community. Furthermore, the proposal is anticipated to provide more viable uses than is permitted under the current industrial zoning. The existing zoning of the entire site is L-Industrial-1 (light industry), but the residential component of the proposed project is more compatible with existing surrounding uses than the existing zoning, while the retained commercial/industrial portion is situated and buffered to provide compatibility with the adjacent neighborhood.

The proposed project is located along State, County and Town roads and has ample frontage along these streets and highways to provide safe and convenient access to the site. Various retail opportunities are present in the area to serve the proposed residential communities, including but not limited to stores located within the Bellport Outlet Center and the Home Depot which are located directly across the street on the west side of Station Road. A BJ's Wholesale store is located just west of Station Road, along the south service road of the Sunrise Highway. The additional business uses proposed for the subject property, will help to support existing uses some of which have been struggling and expand the availability of essential goods and services to make the development more sustainable, while enhancing the vitality and draw of area businesses as a local commercial destination. Existing and proposed retail and restaurant uses will be within a convenient walking distance of the proposed residences and Suffolk County Transit Bus Route 7B which stops at the nearby intersection of Woodside Avenue and South Village Drive, and connects to the Bellport Train Station, Downtown Bellport, Eagle Estates, Brookhaven Memorial Hospital, South Brookhaven Health Center, the Village of Patchogue, the Patchogue Train Station, East Patchogue, Medford and various other bus routes. The project will therefore have convenient access to local transit services, while helping to fulfill various local housing demands.

The proposed conceptual development would connect to the Suffolk County Sewer District (SCSD) No. 7 sewage collection system and its Twelve Pines Sewage Treatment Plants (STP), which would provide the necessary collection and tertiary treatment and disposal of wastewater generated at the site subject to approval of the Suffolk County Sewer Agency (SCSA) and Suffolk County Department of Public Works (SCDPW).

The subject property and future development will also connect to a potable drinking water supply that is available to the site from the adjacent Suffolk County Water Authority (SCWA) wells and available 12-inch water mains along the frontage of the property, subject to SCWA approval.

The project developers will prepare and implement a stormwater pollution prevention plan (SWPPP) with sufficient drainage infrastructure to comply with Town and State requirements and ensure that stormwater runoff from the Town's required design storm will be captured and recharged on-site and/or an existing nearby Town-owned recharge basin (subject to approvals) to avoid potential impacts to the project site and adjacent land and roadways. The project's building design and residential facilities (i.e., recreation buildings, swimming pools, and outdoor open spaces) will provide future residents of the site with needed recreational space that will enhance the quality of life for future occupants, enhance the quality and character of the development, and help offset any additional demand placed on existing public recreational facilities in the area. The proposed architecture and landscaping will help to establish a new sense of place and community and promote social interaction within the site.

The subject project will create strong economic activity by providing jobs and a solid tax base. Consumer activity is expected to bolster the local economy, creating beneficial fiscal and economic benefits throughout North Bellport.

1.2.3 Objectives of the Project Sponsor

The Applicant or Project Sponsor has requested the Change of Zone and designed the **Conceptual Site Plan** to provide:

- A mixed-use PDD and NH-H facility at an appropriate location that is beneficial for its long-term viability and success;
- Safe, convenient and uncongested accesses from local roads and major arterial highways;
- A quality master planned mixed-use development that will offer a unique sense of place and community character that benefits surrounding land uses and is consistent with various components of the Town's Comprehensive Land Use Plan and Greater Bellport Land Use Plan recommendations for new housing opportunities for seniors and the elderly and disabled (See **Section 3.1** for discussion relating to future land uses);
- New affordable rental apartments and for the local workforce and affordable units for retirees;
- An opportunity for future residential uses to be located near existing and proposed activity centers, work places and new and existing shopping opportunities;
- Minimal impact on the environment from wastewater generation and disposal by connecting to a Suffolk County STP that will provide tertiary sewage treatment, and by ensuring proper site drainage;

- An aesthetically attractive development that will retain 11.21± acres of natural woodlands, and be landscaped, buffered and appropriately screened where necessary;
- Recreational facilities for its future residents, in compliance with applicable Town regulations;
- Provide outdoor lighting that complies with applicable Town standards in order to reduce the potential for impacts;
- A project which will minimize and/or eliminate potential impacts to the South Country CSD by minimizing the number of school aged children and maximizing tax revenue. The project consists of NH-H, PRC and MF studio and one-bedroom apartments intended to limit school enrollment, and the plan has been modified to provide a reduction in the number of proposed two-bedroom MF apartments from the earlier version of the plan. The project will generate considerable property tax revenue to support the school district (see **Appendix B**); and
- Many temporary construction jobs and full and part-time assisted living, commercial, and property maintenance jobs.

1.2.4 Benefits of the Proposed Project

A summary of potential benefits from the rezoning and development of the site is provided as follows:

- The project will provide a new assisted living facility containing 130 beds for the region's disabled and/or aging senior citizens that require assistance with their day-to-day needs, 106 PRC units for "Baby-Boom" retirees and empty nesters, 160 MF apartments for a mix of household sizes (studio, one-bedroom and two-bedroom) and incomes (market rate units and affordable/workforce rate units), and diverse businesses that would not only serve future residents but also the greater Bellport community.
- A total of ten percent (10%) or 27 of the proposed dwelling units (16 MF apartments and 11 PRC units) will be marketed as affordable/workforce units.
- The project includes the purchase and redemption of 24.35 PBCs for the MF and PRC components of the project, as well as a $125,887.50 contribution to the Macchia Fund for the business portion of the development.
- The project will have sufficient parking spaces as required by the Town Code to serve the proposed development and reduce on-street parking.
- The project will avoid impacts to groundwater resources by proposed connection to public sewers, using water conservation techniques in the project design, and preventing impacts on adjacent and nearby properties and roadways by containing all stormwater runoff generated by a five-inch rainstorm on site or in an adjacent stormwater recharge basin, subject to drainage and grading review and coordination with the Town Highway Department during the site plan review stage.
- The project will offer a quality mixed-use residential and commercial development with sufficient buffers on-site along the adjacent residential neighborhood to the east to provide separation and screening.
- The building design and residential facilities will establish a sense-of-place based on a carefully considered master plan and promote community interaction on the site.
- The project will reduce the burden on community service providers by maintaining the internal road system, thereby reducing the need for Town highway snow plowing, on-site drainage system oversight and related maintenance efforts on the property.
- The project will be located on a currently vacant and underutilized parcel that is in close proximity to the Bellport Outlet Center, Home Depot and other businesses that sell essential

goods and products or provide necessary or desired services.

- The additional residents and workers at the project site will help to stimulate local business activity to make existing businesses more sustainable.
- The proposed business uses, assisted living facility and PRC dwelling units will not generate school-age children and will therefore help to limit and offset the school district impacts from the proposed studio, one-bedroom and limited number of two-bedroom apartments proposed for the MF component of the project.
- The project will use energy efficient fixtures and must comply with State Building and Energy Code requirements.
- At full build-out, the proposed project is projected to generate over $1.67 million in annual taxes. This represents a net increase of over $1.595 million per year when compared to existing site conditions. The proposed project is also anticipated to levy tax revenues for the South Country CSD, estimated to total over $1.17 million per year. These property tax revenues would cover all associated expenses incurred by the projected 20 public school children to occupy the site, resulting in net surplus revenue to the school district of over $760,000 per year.
- The project will generate needed temporary construction jobs, full-time and possibly part-time assisted care facility employment, and permanent maintenance and retail related jobs and thereby provide employment opportunities to the community. During the estimated five-year construction period, the proposed project is anticipated to generate 148.8 full time equivalent (FTE) jobs. Once construction is completed and the site is occupied and operational, the proposed project is anticipated to generate 95.0 FTE jobs on site. The 95.0 FTE jobs will have an indirect impact of 52.2 FTE employees and an induced impact of 44 FTE employees in other industry sectors, bringing the total economic impact of employment to 191.2 FTE jobs during annual operations. A detailed **Fiscal and Economic Impact Analysis** is provided in **Appendix B** of this DEIS.

1.3 Location

The subject 52.95-acre site is located on the north side of the Sunrise Highway North Service Road, south side of Woodside Avenue (CR 99), east side of Station Road, and west side of South Village Drive in the Hamlet of North Bellport, Town of Brookhaven, Suffolk County, New York (see **Figure 1-1**). The property is further identified as Suffolk County Tax Map District 200; Section 872; Block 2; Lots 15 and 16 and District 200; Section 899; Block 3; Lots 2.2, 2.3, 2.4 and 7.

The subject site is located in an area containing a variety of existing land uses including: light industrial uses to the north on the north side of Woodside Avenue; a major highway transportation corridor (Sunrise Highway and its northern and southern service roads) to its south; a single-family residential neighborhood to its east; and various retail stores, auto repair and autobody shops, a small masonry business, a warehouse, a SCWA wellfield, pump station and water storage tower, and a single-family residential neighborhood to the west (see **Figure 1-2**).

The subject property to be rezoned and developed as described is within the following planning, zoning, and public service districts:

- Town of Brookhaven L Industrial 1 (L-1) zoning district

- South Country Central School District (CSD)
- Brookhaven Fire Department/Fire District
- Suffolk County Police Department (SCPD), 5th Precinct
- Suffolk County Department of Health Services Groundwater Management Zone VI [300 gallons per day (gpd)/acre for commercial projects or 75 percent of property at 300 gpd/40,000 SF for multiple residence projects]
- Suffolk County Water Authority (SCWA), Distribution Area 12
- A PSE&G Long Island electrical service area
- National Grid natural gas service area
- Federal Emergency Management Agency (FEMA) Flood Hazard Zone "X" which is described by FEMA as an unmapped upland area that is outside/elevated above any of its Special Flood Hazard Areas

The site is also very near but currently outside and between sections of SCSD No. 7.

The project site is not within the Long Island Central Pine Barrens, not within designated Long Island Special Groundwater Protection Areas, and not within any Town or State designated overlay districts or Critical Environmental Areas. The site is within the South Shore Estuary Reserve watershed and the Mud, Abets, and Hedges Creeks sub-watersheds.

1.4 Project Design and Layout

The Applicant, Crest Bellport, LLC, seeks Town Board approval to rezone the subject 52.95-acre vacant and wooded property from L-1 to a mixed-use PDD and NH-H zone. The requested Changes of Zone which are filed under one Change of Zone application specifically seek to create a 48.46-acre PDD and a 4.49-acre assisted living facility under NH-H zoning. To develop the site and allow for private ownership of future land uses, a six-lot subdivision of the property will be required from the Town Planning Board along with the filing of reciprocal easements for access, parking and utilities. Site Plan and Special Permit approvals for actual construction and a height variance or Planning Board waiver for the NH-H building will be necessary. The subdivision will allow for independent ownership and operation of future uses.

The proposed 48.46-acre mixed-use PDD will include the following development components:

1) a 160-unit multi-family residential development consisting of 20 studio apartments at 750 SF per unit, 80 one-bedroom apartments at 900 SF per unit, and 60 two-bedroom apartments at 1,150 SF per unit;
2) A total of 106 1,950 SF two-bedroom PRC units with private garages;
3) a 4.49-acre NH-H zone site to include a 3.5-story assisted living facility with a 39,116 SF building footprint that would contain 130 beds.
4) 33,600 SF of retail or health club use;
5) a 4,500 SF restaurant;
6) a 15,000 SF market; and
7) a two-story mini-storage warehouse facility having a total gross floor area of 119,600 SF.

The northernmost 38.69 acres or 73.1 percent of the site will be developed with residential uses including the assisted living facility, PRC, and multifamily dwellings; while, 26.9 percent of the

site (14.26 acres) at the south end of the property will be developed with the mixed commercial uses including the mini-storage warehouse, restaurant, retail/health club space and convenience market (see attached **Conceptual Site Plan)**.

The proposed mixed-use PDD will be fully consistent with applicable land use and dimensional requirements of that zone. The NH-H component of the development will also be consistent with applicable land use zoning standards with the exception of requested dimensional flexibility relating to the maximum building height requirement proposed to be 50 feet and 3.5 stories where a maximum of 35 feet and 2.5 stories is permitted. This request for flexibility in the height of the assisted living facility will help to ensure the practicality and sustainability of the assisted living component of the action and overall development project which will achieve various Town goals for diverse affordable and market rate apartments, a residential community for seniors, assisted living facilities and planned development. The project also involves the purchase and redemption of Pine Barren Credits (PBCs) and a payment to the Joseph Macchia Environmental Preservation Capital Reserve Fund to offset the requested development density and preserve critical environmental resources in environmentally sensitive areas of the Town.

1.4.1 Site Access

The project site has frontage on four roadways including Woodside Avenue (CR 99), Sunrise Highway's North Service Road (SR 27), Station Road, and a ±200-foot section of South Village Drive, off of Woodside Avenue, east of the site, which overlies a small portion of the Walker Avenue right-of-way creating some minor frontage along this residential street. Access to the property will be provided from Woodside Avenue (CR 99) between the proposed NH-H assisted living facility and the main PRC but this will be "right-in only;" from the South Village Drive/Walker Avenue right-of-way; from Station Road near the proposed market; and from the Northern Service Road of Sunrise Highway at the proposed site of the larger (33,600 SF) retail building. An interior/on-site street oriented from north to south will connect each of the access points and internal east/west access roads or driveways will connect all future site uses to provide a relatively pedestrian-friendly development. Proposed retail and restaurant uses will be within walking distance of the proposed MF apartments and private recreational facilities will be provided for the PRC and MF land uses. The project will also be in close proximity to a Suffolk County bus stop at the intersection of Woodside Avenue and South Village Drive. The **Conceptual Site Plan** provided at the back of this DEIS shows the preliminary/conceptual layout of the proposed development.

1.4.2 Parking

The **Conceptual Site Plan** requires a minimum of 1,018 parking spaces but will provide a total of 1,104 parking spaces including Americans with Disabilities Act (ADA) accessible spaces per state and federal laws and standard parking spaces in accordance with Town Code § 85-852, "Table of Parking Requirements." The MF component of the project will be served by 321 parking spaces; the 76-unit PRC component will have 123 spaces and the 30-unit PRC will provide 45 spaces for a total of 168 spaces; the Assisted Living Facility component will have 75 spaces; the Mini-Storage

Warehouse Facility will be served by 60 spaces; the 33,600 SF retail building will be served by 264 parking stalls; the small retail development will have 111 spaces; and the restaurant will be served by 105 spaces. Of the 1,104 parking stalls to be provided, a total of 44 will be ADA accessible spaces, a total of 118 will be driveway spaces,[1] and 54 of the spaces will be private accessory garages that are separate from the dwelling units. All parking spaces with the exception of parking within private garages in the PRC development will be outdoor surface parking spaces. The assisted living facility will also have a 15-foot by 40-foot loading zone/space for deliveries.

1.4.3 Wastewater

The **Conceptual Site Plan** is expected to generate 95,614 gallons of wastewater per day (gpd). Based on this design flow and the site location within Suffolk County Groundwater Management Area VI, all sewage generated at the site must be discharged to a sewage treatment plant (STP). The subject site lies directly adjacent to and between two (2) sections of the existing Suffolk County Sewer District (SCSD) #7, Medford. The applicant proposes an out-of-district connection to the Twelve Pines STP, which is part of SCSD # 7 and located on the south side of Woodside Avenue, 300 feet west of Pine Gate and 850 feet east of Sipp Avenue.

Contact has been made with the Suffolk County Sewer Agency (SCSA), an agency within the Suffolk County Department of Public Works (SCDPW), and the project team has been advised that treatment capacity currently exists at this facility, subject to an application/approval for Conceptual Certification to be submitted to SCSA and full wastewater engineering and SCDHS/SCDPW applications to be completed at the time of site plan review. Currently, the Twelve Pines STP has a design flow of 0.83 million gallons per day and an average annual operating flow of 0.5 mgd indicating a residual capacity of 0.33 mgd **(US Environmental Protection Agency, 2018)**. Since the proposed action is expected to generate a maximum of 95,614 gpd or 0.0956 mgd, considerable excess capacity is available to serve the project.

The connection to the STP will be effectuated through an existing pump station located directly adjacent to the southeast property line of the subject property, known as "Pump Station #5," which is part of SCSD #7. The pump station conveys wastewater via existing sewer mains across the subject property west to Station Road, north along Station Road to Woodside Avenue, and west along Woodside Avenue to the Twelve Pines STP, a distance of approximately 8,900 linear feet, all using the existing installed sewer mains of the district. The route of the existing sewer mains is depicted in **Figure 1-3**. The applicant has submitted to SCSA for Conceptual Certification and will process this application for decision. Pump station sizing and final alignment of buildings on the site will be adjusted during site plan review to accommodate the proposed project.

[1] Attached garage spaces are not counted when a unit has both a driveway and attached garage.

1.4.4 Water Supply

The proposed project is estimated to require a conservative total potable water supply of 95,614 gallons per day (gpd) for domestic/operational purposes, as well as an estimated irrigation demand of 24,265 gpd as averaged over the course of a year for a total average water demand of 119,879 gpd. The project site is located within an existing SCWA service area and three 12-inch water mains are currently present in the area, including one along the North Service Road of Sunrise Highway abutting the site, one along Station Road along the west side of the site, and one that is on the north side of Woodside Avenue opposite the site. Connection to the existing water distribution system would utilize the mains already present and would only require site connection and extension of mains on to the site. A SCWA wellfield, pump station and standpipe are also present in the area along Station Road on the west side of the property opposite Hollow Street. The Applicant and project representatives have been in coordination with SCWA to obtain preliminary input and provide peak flow data on the project. SCWA will continue the review and will provide comments during the SEQRA process. The Applicant will continue to coordinate to ensure adequate water supply.

1.4.5 Drainage

The project will require on-site drainage collection and subsurface recharge facilities using a system of catch basins and leaching pools to capture the anticipated flow from a five-inch rainstorm as required by the Brookhaven Town Code and the Town Engineer. The proposed project involves a Change of Zone, and thus, a complete set of Grading, Drainage, and Erosion and Sedimentation Plans have not been prepared at this time but will be developed for the project, incorporating any changes resulting from the change of zone review, and submitted to the Planning Board as part of the Subdivision/Site Plan application package, subsequent to the Change of Zone.

1.4.6 Utilities

Above and below ground electrical utilities are available along Station Road. In addition, an eight-inch National Grid gas main is present along Station Road and a six-inch gas main is located along Woodside Avenue. The Applicant and its representatives will continue to work with area utility providers to secure necessary approvals.

1.4.7 Recreation/Open Space

Open space and recreational facilities will be provided on-site for the MF and two PRC components of the PDD. Based on the **Conceptual Site Plan**, the MF development will provide approximately 38,000± SF of recreation space including a 2,400± SF recreation building, outdoor swimming pool, and outdoor common space. The 76-unit PRC component of the development will also include a 2,400± SF recreation building, swimming pool and outdoor common space totaling 124,000± SF and the 30-unit PRC development will contain +6,000 SF of recreational space.

1.4.8 Landscaping, Exterior Lighting, and Signage

Landscaping, outdoor lighting and signage will also be necessary. The purpose of these amenities and improvements is to enhance the appearance of the development, help to integrate the site into the surrounding community, promote a high quality of life for future residents and neighbors of the development, provide screening and buffering, ensure public safety, identify the land uses on-site, and prevent or mitigate any significant adverse impacts on the surrounding community. The Applicant and its consultants will work closely with the Town Planning Board during the Site Plan/Special Permit/Subdivision review process to ensure that these aspects of the proposed plan comply with applicable sections of the Brookhaven Town Code, enhance the visual appearance of the site, provide suitable screening where needed, and prevent light trespass, skyglow and glare from exterior site lighting. Outdoor lighting will be provided to establish a safe and secure environment with illumination only in those areas where it is necessary and signage will help to control traffic and parking and protect motorists and pedestrians.

Lighting will be consistent with Town standards and specifications including installation of dark-sky compliant lighting that is shielded and directed downward to mitigate potential impacts. Traffic signage will ensure traffic safety and coordinate parking (e.g., ADA parking), and signs for the proposed businesses, assisted living facility, and the residential developments will be useful in identifying each land use. Signage will be located and designed in accordance with Chapter 57A of the Brookhaven Town Code. The applicant has designed the project to:

- Conform to the Town Comprehensive Plan Update in terms of providing senior housing opportunities and workforce housing, consideration of the rezoning of large underutilized industrially-zoned parcels, and ensuring that work places, shopping, and activity centers are located in close proximity to residences, and that a sense-of-place is created (**Section 3.1**);
- Support the goals of the Town's PRC, PDD and NH-H zoning;
- Construct complementary uses that provide an appropriate transition between moderate density single-family residences to the east and northwest, commercial uses to the southwest, a major road corridor and light industrial uses to the north and a highway to the south of the site;
- Comply with applicable SCDHS standards and requirements and minimization of potential impacts to groundwater resources by connecting to an existing sewage treatment facility;
- Provide an aesthetically attractive development;
- Obviate a potential impact to local stormwater runoff patterns, by containing all stormwater runoff from the required drainage design storm within the site;
- Provide safe access in conformance with Town and County highway access limitations;
- Create numerous fiscal and economic benefits for the community; and
- Provide superior site design, including appropriate on-site recreational amenities and sense of place through attractive community architecture and landscaping, and indoor and outdoor recreational spaces.

A summary of site and project characteristics is provided in **Table 1-1** on the following page.

1.5 Involved Agencies and Required Permits, Approvals and Reviews

All site development submissions are subject to review under SEQRA. For the Proposed Action, the review begins with the submission of the Change of Zone application to the Town Board. Based on the information presented in the documents comprising that application, the Town Board, as Lead Agency under SEQRA, adopted a Positive Declaration and has required the preparation of this DEIS to evaluate the project to determine if a significant impact to the environment will or may occur from the rezoning. Site Plan/Special Permit, relaxation of NH-H building height, and Subdivision review will then be required from the Planning Board.

This DEIS complies with SEQRA processing requirements as administered by the Brookhaven Town Board which is Lead Agency for this environmental review. It has been prepared in order to take a "hard look" at and address any potential environmental impacts that may be of concern to the Town and the Bellport communities. This document also provides an analysis of the potential impacts of development of the subject property, consistent with its current zoning, in order to establish a comparative assessment of possible impacts and benefits. Finally, the DEIS is intended to provide the Brookhaven Town Board and Planning Board with information to assist in reaching informed decisions on the Change of Zone application, Subdivision and Site Plan/Special Permit applications.

Table 1-1
SITE AND PROJECT CHARACTERISTICS
Existing Conditions and Proposed Project

Parameter	Existing Conditions	Proposed Project
Land Use	Vacant/Wooded	Assisted Living, PRC, MF Apartments & Mixed Commercial
Wastewater Treatment System	None	Suffolk County STP
Site Coverages (acres)**:**	---	---
Buildings	0	9.55
Parking Lots, Internal Streets, Driveways, Walkways	0	16.85
Forest or Naturally Vegetated	52.34	11.21
Unvegetated/Cleared/Bare Ground	0.61	
Landscaping and Turf	0	15.33
Total	52.95	52.95
Water Resources:	---	---
Domestic Water Use (gpd; annual, average)(1)	0	95,614
Irrigation, annualized (gpd)(2)	0	24,265
Total Water Use (gpd)	0	119,879
Sanitary Waste Generation:	---	---
Total Sanitary Waste Generation(1)	0	95,614
Vehicle Trips Generated (vph)**:**	---	---
Weekday AM Peak Hour	0	258(3)
Weekday PM Peak Hour	0	322(3)
Saturday Midday Peak Hour	0	291(3)

Parameter	Existing Conditions	Proposed Project
Miscellaneous:	---	---
Affordable or Workforce Dwelling Units (%) (units)	0	10%, 16 MF+11 PRC = 27
Total Residents (capita)	0	594(4)
School Age Children/Children to Attend Public School	0	20(4)
Employees (FTE) (Construction/Post Construction)	0	149/191
Total Taxes ($/year)	$84,572	$1,595,131(4)
School Taxes ($/year)	$59,363	$1,119,662(4)
Parking Required (spaces)	0	1,018
Parking Provided (spaces)	0	1,104
Solid Waste (Garbage) Generation (lbs./day)	0	10,664.2(5)

gpd - gallons per day; vph-vehicles per hour

(1) Conservative estimate based on SCDHS design rates

(2) Assumes all landscaped areas are irrigated at 24.0 inches/year (one inch per week over irrigation season averaged as daily flow over course of one year)

(3) ITE Trip Generation Manual, Tenth Edition; adjusted for passby trips; See Traffic Impact Study provided in **Appendix L**

(4) See **Section 3.2** and **Appendix B** for more detail

(5) Assumes 4 lbs/resident/day for apartments & PRC units; 5 lbs./bed/day for nursing homes; 0.13 lbs./SF/day of retail space; 0.09 lbs./SF/day for restaurant space; and 0.012 lbs./SF/day for industry & storage **(Salvato, 2009)**

Table 1-2 is a list of the permits, approvals and agency reviews anticipated to be necessary for the proposed project.

Table 1-2
PERMITS, APPROVALS AND AGENCY REVIEWS REQUIRED

Applicable Board/Agency	Permit/Approval/Review Type
Brookhaven Town Board	Change of zone approval
Brookhaven Town Planning Board	Subdivision, Site Plan, Special Permit, Variance/Waiver
Brookhaven Town Building Department	Building permits
Suffolk County Department of Health Services	Wastewater disposal and water supply approval
Suffolk County Department of Public Works & Suffolk County Sewer Authority	STP connection approval
Suffolk County Department of Public Works	Road work permit (Woodside Ave./CR 99)
Suffolk County Water Authority	Water supply connection approval
Suffolk County Legislature	STP connection
Suffolk County Planning Commission	Section 239-m Planning Review
New York State Department of Environmental Conservation	SPDES General (stormwater) Permit, STP connection
New York State Department of Transportation	Road work permit (SR 27 north service road)

SECTION 2.0

NATURAL ENVIRONMENTAL RESOURCES

2.0 NATURAL ENVIRONMENTAL RESOURCES

2.1 Topography and Soils

2.1.1 Existing Conditions

Topography

Topography at the subject site is shown in **Figure 2-1**. The property exhibits a generally flat to gently sloping character. The most steeply sloped area (approximately 8± percent grade) is found in the northwest corner of the site. Ground surface elevations on the 52.95-acre site range between 60± feet above mean sea level (msl) in the southwest corner of the property to 70± feet above msl at a few scattered locations on the site, indicating a relatively limited change in surface elevation and relief across the site. The various gentle and gentle-to-moderate slopes on the site descend in various directions.

Based on site topography, it is anticipated that minimal grading will be necessary to achieve suitable grades for interior streets, parking lots, drainage and the construction of proposed buildings. Proposed building foundation construction, road and drainage improvements, street and parking lot construction, and installation of water mains, sewer lines, and other utilities will, however, require excavation and backfilling that will disturb the existing soil profile in the areas to be developed on the site.

Soils

The United States Department of Agriculture Soil Conservation Service and Cornell Agricultural Experiment Station "Soil Survey of Suffolk County, New York" **(1975)** provides complete mapping, classification, and descriptions of soils found in Suffolk County. Soils are classified by soil characteristics, depositional histories and other factors into soil associations, which are in turn grouped into soil series. An understanding of soil characteristics is important in land development and environmental planning as it aids in determining vegetation type, slope, drainage characteristics, engineering properties, past disturbance, and land use limitations. These descriptions are general, however, and soil characteristics, particularly those of glacial origin, can vary greatly from place to place. The slope classifications noted in this subsection are generalized based upon regional soil types. The more detailed subsection on topography (see above) should be consulted for analysis of actual slope conditions and development constraints that may apply.

According to the Soil Survey of Suffolk County, NY the project site contains soils belonging to the Riverhead-Plymouth-Carver Association. These soils are generally characterized as:

> Deep, nearly level to gently sloping, well-drained and excessively drained, moderately coarse textured and coarse textured soils found on the southern outwash plain.

Four (4) soil types, mapping units or series have been identified on the subject site by the Soil Survey. The approximate locations and areal extent of these soils are depicted in **Figure 2-2**. As can be seen, the Plymouth Loamy Sand, 0 to 3 percent slopes (PlA) covers most of the site

followed by the Riverhead Sandy Loam, 0-3% slopes (RdA) and lesser and roughly equal areas of Riverhead sandy loam, 3-8% slopes (RdB) and Haven loam, 0 to 2 percent slopes (HaA). The characteristics and properties of the four soil mapping units identified on the site are described below.

Plymouth loamy sand, 0 to 3 percent slopes (PlA) – Soil series consisting of deep, excessively drained, coarse-textured soils that form a mantle of loamy sand or sand over thick layers of stratified coarse sand and gravel. These soils are mainly found on outwash plains located south of the Ronkonkoma moraine but can also be found on flat hilltops and in drainage-ways on morainic deposits. The areas are generally level, but some areas have undulating topography. The soil erosion hazard is classified as "slight." This soil covers approximately 60 percent of the site where the MF, commercial and mini-storage components of the development are proposed.

Riverhead Sandy Loam, 0-3% slopes (RdA) - This soil is generally found on outwash plains, and the areas where this soil type are found are commonly large and uniform. Where this soil occurs on outwash plains, it generally has slope characteristics consistent with the outwash plain landform but slopes may be undulating in places. A few small, irregular areas are found on glacial moraines. The hazard of erosion for this soil type is "slight." This soil is limited only by moderate droughtiness in moderately-coarse textured solum.[1] RdA soils comprise approximately 30 percent of the site and are found in the northeastern/north central portion of the property in the general location of the proposed 76 PRC units.

Riverhead sandy loam, 3-8% slopes (RdB) – This soil type is found on both outwash plains and moraines. It is generally located in areas along shallow intermittent drainageways. Slopes are generally short, but large areas found on moraines are undulating. The soil exhibits a moderate to slight erosion hazard. The main concerns relating to this soil are controlling runoff and erosion and providing adequate moisture. RdB soils comprise a small area (roughly 5 percent of the site) in the northwestern corner of the property where slopes are steepest but are still geographically limited.

Haven loam, 0 to 2 percent slopes (HaA) - This soil type is most often found in areas that are nearly level and are most commonly associated with glacial outwash plains. HaA soils have a low potential for erosion, are well suited for agriculture, exhibit low compressibility, and have only slight limitations when it comes to sewage disposal fields, home sites, streets, parking lots, lawns and landscaping. HaA soils comprise a small area (roughly 5 percent of the site) in the very northwestern corner of the property.

Table 2-1 presents a list of the soil features that may affect development associated with the proposed project, as well as the soil limitations that may constrain development to a very small extent. The Soil Survey indicates that these soils are generally supportive of the conceptual development and pose only slight limitations for such development.

[1] The "solum" is defined as the upper part of the soil profile, above the parent material, in which the processes of soil formation are active. The solum in a mature soil includes the A and B horizons. Generally, the characteristics of these horizons are unlike those of underlying material. The living roots and other plant and animal life characteristic of the soil are largely confined to the solum.

Table 2-1
SOIL LIMITATIONS

Soil Features Affecting:	**Plymouth loamy sand, 0 to 3% slopes (PlA)**	**Riverhead Sandy Loam, 0-3% slopes (RdA)**	**Riverhead Sandy Loam, 3-8% slopes (RdB)**	**Haven Loam, 0-2% percent slopes (HaA)**
Foundations for low buildings	Low compressibility	Low compressibility	Low compressibility	Low compressibility
Limitations For:				
Sewage disposal fields	Slight, permeable soils	Slight, permeable soils	Slight, permeable soils	Slight
Home sites	Slight	Slight	Slight	Slight
Streets and parking lots	Slight	Slight	Moderate, slope but slight for town and country roads	Slight
Lawns and landscaping	Severe, sandy surface layer	Slight	Slight	Slight
Irrigation	Very low available moisture, rapid water intake	Moderate to rapid water intake, moderate moisture	Moderate to rapid intake, moderate available moisture capacity	No unfavorable factors
Drainage	Excessively drained	Well drained	Well drained	Well drained
Agriculture	Class 3S, severe limitations	Class 2S, moderate limitations	Class 2S, moderate limitations	Class 1, few limitations
Erosion hazard	Slight	Slight	Slight to moderate	Low

Past Soil Disturbance or Contamination

The site currently consists of undeveloped woodland. A review of NYSDEC databases did not reveal any past spills or other known or potential contamination of the subject site from human activities. The Brookhaven Landfill is located 1,500± feet east of the subject property. The plume of contaminants emanating from the landfill has been determined to be flowing in a southeasterly direction, in the same direction of groundwater flow in the area but in the opposite direction of the subject property (**Wexler, 1988**). The plume is discussed in greater detail in **Section 2.1.2**.

2.1.2 Potential Impacts

Topography

The existing site topography will not be significantly altered by the proposed project. The property is relatively flat to gently sloping with the exception of a small area of gentle-to-moderate slopes in the northwest corner of the site. An estimated 41.74 acres will be cleared (15.33 acres of which will be landscaped) under the **Conceptual Site Plan** (attached at the end of this DEIS). Minor grading will be necessary to achieve suitable grades for proposed development. Site quantities are further described as follows.

An estimated 15.33 acres of the site will be landscaped, leaving 11.21 acres in a natural/undisturbed condition. A total of 9.55 acres will be covered by buildings and an estimated 16.85 acres will be paved for streets, parking lots or sidewalks. Disturbed areas will be re-graded as necessary and the slopes stabilized through building construction, paving, temporary seeding, and final landscape plantings but this re-grading appears to be minor due to the limited topographic relief across the site. The proposed grading program will be primarily directed toward establishing level building areas and directing stormwater runoff to the proposed drainage collection and recharge systems. Since existing topographic conditions for most of the site are generally flat to gently sloping, it is expected that the cutting of slopes will be limited and grading will not be significant. Excavations for the construction of building foundations and installation of drainage structures and underground utilities will, however, be necessary and will require on-site use of backfill material and regrading to reincorporate soil into the site. This excess soil material can be easily reintegrated into the site, thereby limiting if not eliminating the export of soil. Grade transitions will be significantly less than a 1:3 slope and retaining walls are not anticipated to be necessary.

All construction trucks and equipment, as well as material storage and staging areas will use a designated construction entrance to the site which will be located at the proposed access/egress on/off of Station Road. Truck traffic related to construction will be temporary and intermittent. Since significant soil import and export is not anticipated to be necessary due to flat or gently sloping site conditions, the large size of the property which can accommodate excess soil, and the overall quality of the soils on-site for drainage and construction, some heavy construction vehicles and equipment can be parked on-site for extended periods of time with relatively limited need for excessive on and off-site dump truck traffic that are typical of project sites with steep topography requiring considerable movement of soil on and off-site. Moreover, the major roads and highways in the area (Sunrise Highway, Woodside Avenue and Station Road) have sufficient capacity to accommodate the anticipated construction traffic.

A detailed Grading and Drainage Plan and Erosion and Sedimentation Control Plan will be prepared as part of the site plan application process. These plans will provide additional details regarding overall site grading and drainage and erosion control, and require Town planning and engineering reviews and Planning Board approval prior to implementation. All grading and the drainage system will conform to applicable Town standards and regulations. Grading activity will be conducted internally within the site and will not impact adjacent properties, especially residentially developed land as existing woodlands along most of the property's perimeter will be retained. In addition, construction management techniques outlined in **Section 4.5** of this DEIS will ensure that sedimentation and erosion control measures are implemented.

The need for a SPDES General Permit and Stormwater Pollution Prevention Plan (SWPPP) will be determined during the Site Plan approval process; however, it is noted that there are no nearby receiving waters or wetlands in the area. If a SPDES Permit and SWPPP are required, the project team will fully comply with the requirements of the permit, the guidelines for SWPPP preparation, and the standards and requirements of the Town Code and Town Engineer.

As a result of the relatively flat nature of the site's topography, significant surface alterations are not anticipated with the exception of activities necessary for construction of foundations, streets and parking lots, installation of drainage structures, water and sewer mains, and underground utilities and landscaping. There are no unique geomorphic features on-site and a variety of stormwater, erosion and sedimentation controls will be implemented to address the minor topographic concerns identified. The risk of soil erosion, based on soil descriptions from the Suffolk County Soil Survey, suggest only slight erosion potential except a slight-to-moderate potential in the more steeply sloping areas at the northwest corner of the site. Grading, installation of silt fencing, reseeding, dust control and other erosion controls will be implemented during clearing, grading and construction to prevent or reduce any erosion concerns (see below). As a result, no significant adverse topographic impacts are expected as a result of the proposed project.

Soils

An assessment of soils was conducted based on Soil Survey information which revealed that soils on-site are generally well-suited for development and would pose mostly minor limitations or constraints to development. Possible minor issues include:

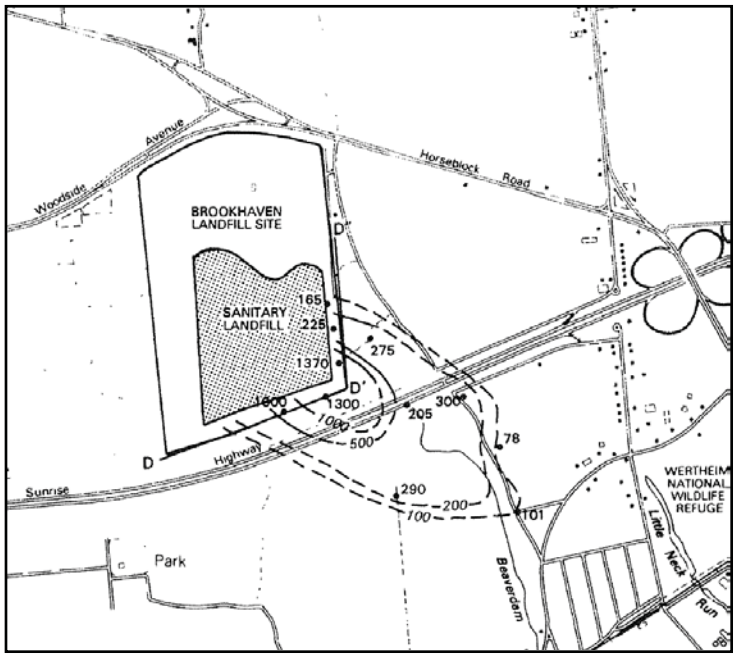
- A slight risk of pollution of lakes, springs, or shallow wells due to the relatively permeable nature of PlA, RdA and RdB soil. This issue specifically relates to the use of conventional on-site septic systems combined with rapid soil permeability. Since the project will connect to public sewers, and drainage will be properly sited, designed, and installed, this issue does not pose a constraint to proposed development of the site;
- Rapid or moderate-to-rapid recharge of irrigation water due to the well-drained nature of the soils. This minor issue can be addressed by planting native, well-adapted and/or low water demanding landscaping (xeriscaping); mulching or applying topsoil if needed in some areas for greater water holding capacity. Issues relating to drainage are limited due to the considerable property size which allows for proper siting of drainage leaching pools, possible use of an existing adjacent recharge basin that is adjacent to the southeast corner of the site that is consistently dry based on past aerial photography and may have been oversized to accommodate growth on the subject property (pending drainage and grading review and coordination with the Town Highway Department during the site plan review phase), and the relatively considerable depth to groundwater at the site which is estimated to be at least 35 feet below the ground surface.
- The only other minor issue is a small area of the gentle-to-moderately steep slopes in the northwest corner of the property which can be easily addressed by proper grading and slope stabilization techniques.

There are no lakes or wetlands on-site and the proposed development will rely on a public water supply as its source of potable drinking water. Wastewater will be conveyed off-site to a County STP for advanced sewage treatment and disposal. A SCWA water main is available along the frontage of the property. The Suffolk County Sanitary Code requires all multifamily residential developments to connect to public water supplies when multifamily residential developments are proposed and mains are available in the area. The project has and will continue to undergo review by SCWA to ensure adequate water supply and protection of the nearby water supply well field. The applicant has made several changes to the plan to ensure that prior comments of SCWA are addressed and water supply infrastructure in the area is protected (see **Section 2.2** and **Section 3.2** for more on the protection of groundwater and the public drinking supply).

All stormwater runoff generated on the developed portion of the property will be retained and recharged in on-site drainage systems designed to fully accommodate the volume of runoff anticipated from the required design storm event, and in conformance with Town specifications and requirements. Some of the drainage on-site might be discharged to the Town recharge basin located adjacent to the southeast of the site, subject to future Town drainage and grading approval and coordination with the Highway Department, as it is consistently dry based on past aerial photography and may have been oversized to accept runoff from the subject property and existing subdivision located to the east. Drainage plans will be developed in accordance with the New York State Stormwater Management Design Manual and New York Standards and Specifications for Erosion and Sediment Control, and drainage will be designed to ensure that there are no impacts to the nearby public wellfield. Finally, the soils present on-site do not have characteristics that would limit or otherwise adversely affect the operation of the drainage system. Recharge is expected to be rapid or moderately rapid, and depth to groundwater is sufficient to allow for recharge of stormwater and considerable filtration before reaching the water table.

Potential fugitive dust impacts will be mitigated through implementation of dust, erosion and sedimentation control measures that are described in **Section 2.1.3**. A Grading and Drainage Plan will be submitted to the Planning Board at the site plan/subdivision stage as will a detailed Erosion and Sedimentation Plan, which will be subject to review and approval of the Town. This will ensure that the project's drainage system will function properly and minimize potential stormwater impacts to the maximum extent practicable and erosion potential will be property managed. Based on these considerations, no significant impacts are expected with regard to soils.

<u>Soil and Subsurface Contamination</u>



Since the site has not been developed and there are no records of site contamination filed with the NYSDEC for the property or adjacent land, existing soil contamination is not expected to be present. The Brookhaven Landfill is located approximately 1,500 feet due east of the subject property; however, a review of groundwater table contours for the area (**Figure 2-3)** and the mapped contamination plume confirms that groundwater beneath the landfill flows in a south/southeasterly direction away from the landfill, away from the subject site and toward Beaverdam Creek, thereby posing no concerns regarding landfill contamination with respect to the subject property. This flow was also noted by **Wexler (1988)** who studied the landfill plume and

documented this finding in a U.S. Geological Survey report. See inset diagram of the plume migrating southeast from the landfill.

The proposed development will connect to the public water supply of the Suffolk County Water Authority and wastewater will be conveyed to an existing Suffolk County Department of Public Works Sewage Treatment Plant for treatment. The proposed project will change the zoning from the current L-Industrial-1 district which could result in light industrial/manufacturing uses on the subject property, to a PDD and assisted living facility zone that will replace industrial use with residential use, mini-storage, restaurants and retail uses. Uses under the proposed zoning would tend to be less of a concern with respect to handling of chemicals and potential water resource impacts than uses permitted by existing zoning, particularly in consideration of the proposed connection to an STP. As a result, there are no significant concerns of existing subsurface site contamination at the subject site, and the potential for contamination concerns in the future is also reduced.

2.1.3 Proposed Mitigation

The following mitigations are planned for the construction aspects of the project.

- Proper site grading design by a licensed professional engineer and reviewed by the Town will eliminate the limited soil restrictions posed by slopes.
- Clearing and rough grading of the site will be conducted in accordance with the approved Site Plan and under the supervision of the Town Building Department.
- A stabilized construction entrance will be provided to reduce the tracking of soil on to public streets.
- An Erosion and Sediment Control Plan will be prepared during the site plan stage and implemented during construction.
- Erosion controls including work area perimeter silt fencing and drainage inlet protection will be installed around all grated drainage inlets, as applicable, to prevent sediments from entering and settling within any subsurface drainage structures that may be affected.
- Drainage infrastructure will be installed to meet the design and capacity requirements of the Town and will meet the satisfaction of the Town Engineer.
- Material staging areas and designated stock pile locations will be located on-site and will be protected.
- Native plants or species that are well adapted to site soil conditions, mulching and "xeriscaping," as well as the use of efficient/water conserving irrigation systems, watering at night and only when it is needed, watering selectively, and in zones rather than site-wide, will help to overcome minor issues associated with excessively drained soils.
- Test borings are expected to be completed in drainage areas to ensure that suitable subsoils are present. If poorly drained soils or hardpan are encountered, which is not anticipated, these soils can be easily removed and replaced with clean sand to ensure adequate drainage.
- Sanitary wastes are proposed to be conveyed to the Twelve Pines STP for treatment and disposal. The advanced tertiary level of treatment that will be provided, and the use of an approved stormwater collection and recharge system that complies with all standards and specifications of the Town and applicable state and County agencies, will help to reduce soil, groundwater and subsurface issues. These coupled with a relatively deep groundwater table and the removal and

replacement of subsurface soils if restrictive layers are encountered will help to protect groundwater.

- Site grading operations will be undertaken in a manner to promote the incorporation of excavated material into the project site.
- If required, a SWPPP, including a detailed erosion and sediment control plan, will be prepared as part of the site plan submittal. These plans will assist in the management of stormwater generated on the site during construction, and for post-construction stormwater management. The Planning Board and Town Engineer will provide independent review of the plans and must approve the plans prior to them being implemented.
- Dampening soil if necessary to control dust, installation of a stabilized construction entrance and/or "rumble" strips at the construction entrance to remove soil from truck tires, drainage inlet protection (if drains may be affected), establishment of suitable internal construction staging areas and retention of naturally vegetated buffer areas around most of the perimeter of the property will minimize disturbance and issues from soil resources during construction to the extent practicable. Onsite construction vehicle speeds will be kept to a minimum to prevent unnecessary raising of dust; and reseeding and landscaping will be implemented as soon as possible after ground disturbance to stabilize soils.
- Equipment involved in grading will be routed and parked within the site in proximity to the grading area, to minimize the amount of truck activity, thereby reducing the potential for airborne dust.
- Development areas will be permanently stabilized and slopes will be 1:3 or less to minimize erosion.

2.2 Water Resources

2.2.1 Existing Conditions

Surface Water and Drainage

The vacant 52.95-acre site currently consists of upland forest and there are no regulated natural or artificial surface water bodies or wetlands on the subject property or immediately adjacent to the site based on site inspections and a review of New York State Department of Environmental Conservation (NYSDEC) wetlands maps (**Figure 2-4**). Nevertheless, existing unmapped dry or intermittently wet man-made stormwater recharge basins do exist in the area including adjacent to the southeastern property boundary; nearby at the southwest corner of the intersection of Woodside Avenue and Station Road; on the west side of Station Road parallel to and south of Harrison Avenue; and south of the site on the south side of Sunrise Highway. The Town-owned stormwater recharge basin located near the southeasterly property boundary serves the Horizon Village residential neighborhood located along South Village Drive, while the recharge basin at the intersection of Woodside Avenue and Station Road approximately 350 feet west of the site, is a County owned recharge basin which appears to be associated with CR 99 (Woodside Avenue). The recharge area parallel with and south of Harrison Avenue is a Town-owned facility. These drainage features are overgrown with vegetation. The recharge basin on the south side of Sunrise Highway is owned by the State and is approximately 500 feet from the subject property.

The nearest permanently inundated water feature, a small aerated man-made recharge pond, is located 250± feet northeast of the site on the Atlantic Point Apartments property. Similar to the

other stormwater recharge basins in the area, this feature is not shown on the NYSDEC freshwater wetlands map.

The Atlantic Point stormwater pond is on the opposite/north side of Woodside Avenue and is considered by the Town to be classified as an "artificial wetland". The proposed project is well outside the boundaries of both the NYSDEC 100-foot jurisdiction and the Town of Brookhaven 150-foot wetlands jurisdiction, which is 25 feet for artificial wetlands. The Atlantic Point recharge basin is fully contained and therefore has no surface water inlets or outlets. The fully contained recharge basin, along with 12 similar small stormwater ponds on the Atlantic Point site, are, however, depicted on the US Fish and Wildlife Service (USF&WS) National Wetland Inventory (NWI) maps (**Figure 2-5**). The NWI map identifies the Atlantic Point drainage ponds as falling under the classification "PUBHx;" the applicable description classifies these ponds as excavated man-made palustrine features that are permanently flooded and have an unconsolidated bottom.

On-site inspections have been conducted to identify existing environmental conditions, including the presence of unmapped surface waters, wetlands or other features of interest that might be affected by the proposed project. The site inspections did not reveal the presence of any unmapped surface waters or wetlands on or immediately adjacent to the property.

The project site is currently undeveloped woodland; therefore, stormwater is either directly recharged into the ground on-site, evaporates in-place, is absorbed and transpired by vegetation, and/or runs off-site and into a street drainage system. Based on the size of the property, the absence of impervious ground cover, the property's well-drained soils, the relatively flat terrain, and vegetated nature of the property, it is expected that very little if any precipitation currently runs off-site and that most is recharged on-site naturally, evaporated or absorbed by vegetation.

Ground surface elevations at the subject site range between 60± feet above mean sea level (msl) in the southwest corner of the property and 70± feet above msl at a few scattered locations. The property is also located within a Federal Emergency Management Agency (FEMA)-designated "X" flood zone (See **Figure 2-6**). The FEMA X flood zone is found in upland areas and is outside of any of FEMA's 100-year flood zones or Special Flood Hazard Areas; this flood zone designation is very rarely if ever flooded by large storm events.

<u>South Shore Estuary Reserve Area/Watershed (Mud, Abets and Hedges Creek Sub-watersheds)</u>
The subject property is located within the watershed of the South Shore Estuary Reserve, which was intensively studied as part of the Long Island South Shore Estuary Reserve Comprehensive Management Plan (hereafter, "SSER CMP"). Despite being located in the SSER watershed, the property is outside of the established SSER Critical Environmental Area (CEA). Nevertheless, a review of the Proposed Action against the recommendations of the SSER CMP is appropriate to ensure that the proposed rezoning and future development of the site under this zoning will not result in any significant adverse impacts on the SSER or its bays, tributaries, wetlands, watersheds and other environmental resources, and that the Proposed Action is not contrary to applicable SSER recommendations.

The SSER Council adopted the SSER CMP in April of 2001. The purpose of the CMP was to develop a well-reasoned and fully coordinated strategy to preserve and protect the long-term health of the SSER and its associated environmental resources, not to mention related tourism and other economic benefits that it provides. The plan involved considerable agency and public outreach and analyses and contains numerous policies and guiding principles to promote the well-being of the SSER and sustain its environmental quality, ecological integrity, recreational benefits and economic uses for generations to come.

Many small rivers and creeks exist along the Town's south shore. Most of these are generally oriented north/south or north-northeast/south-southwest and help to drain the SSER watershed and ultimately discharge water into the SSER. The subject property is located within parts of three SSER sub-watersheds, including the Mud Creek, Abets Creek, and Hedges Creek watersheds (**Figure 2-7**). The three creeks are considered to be tidal (brackish) water bodies and have or may have tidal wetlands near their mouths at or near the SSER shoreline but transition to fresh water and freshwater wetlands farther inland. The headwaters of all three creeks are located south of Sunrise Highway and are considerable distances from the subject site.

The headwaters of Mud Creek are estimated to be located roughly 7,050 feet (1.34± miles) southwest of the site and this creek flows in a southwesterly direction toward the SSER.[2] Mud Creek is closest to the subject property as it extends farthest inland (to the north) but is also farthest west from the site compared to the two other creeks.

The headwaters of Abets Creek are estimated to be approximately 12,000 feet (2.27± miles) southwest of the proposed Crest Town Center. This waterbody flows in a generally south-southwesterly direction toward the SSER. Although the headwaters of Abets Creek are farther from the subject site than Mud Creek, as it does not extend as far inland, it is also located east of Mud Creek.

The headwaters of the third waterbody, Hedges Creek, are estimated to be approximately 12,900 feet (2.44± miles) south-southwest of the site. Hedges Creek flows in a south-westerly direction toward the SSER and is the farthest east of the three creeks.

Although surface water and runoff drains generally in a south-southwesterly direction from the subject site, subsurface/groundwater flow is generally toward the southeast of the site, toward Beaverdam Creek which is also on the south side of Sunrise Highway and over 6,000 feet (1.14± miles) east-southeast of the proposed Crest Town Center. Due to the distances of the site from these water bodies, there is no surface connection between the subject property and these SSER creeks. The subject site is within the watersheds of the creeks; however, stormwater currently infiltrates on the subject property. There is no evidence of sheet flow, channelized flow, gullies, erosion or off-site transport of stormwater from the subject site that would impact neighboring properties, let alone creek features that are over a mile from the subject site. In addition, based on the hydrologic conditions and direction of groundwater flow evident from review groundwater table contours for the area (**Figure 2-3),** there is no subsurface hydrologic

[2] The exact origins of the headwaters of the creeks are difficult to identify precisely due to the anticipated intermittent nature of the upper reaches of the streams which may fluctuate by season, periods of extensive rainfall, and be affected by surface topography and other factors.

connection between the subject site and Mud Creek, Abets Creek or Hedges Creek. The existing surface watershed and hydrologic conditions assist in determining that the subject site under current conditions does not influence these creeks of the South Shore Estuary Reserve.

Groundwater Hydrology/Hydrogeology

The major water-bearing units beneath the subject site include the Upper Glacial aquifer, which is underlain by the Magothy and Lloyd aquifers, respectively (see **Figure 2-8**). The Magothy and Lloyd aquifers are separated by the Raritan Clay which restricts flow between the two geologic units. The primary units from which water is drawn in the Town of Brookhaven are the Upper Glacial and Magothy aquifers. These unconsolidated water-bearing units (i.e., aquifers) comprise what is referred to by the U.S. Environmental Protection Agency (EPA) as Long Island's "Sole Source Aquifer." This regional water resource represents the only currently available source of drinking water in Suffolk and Nassau Counties, and therefore, must be protected to ensure its long-term quality and availability for future generations.

The proposed project is also located within SCDHS Groundwater Management Zone (GMZ) VI. Article 6 of the Suffolk County Sanitary Code requires that multifamily developments within GMZ VI not exceed a total on-site wastewater density load of 300 gpd/40,000 SF based on 75 percent of the total site acreage and that commercial uses do not exceed a discharge rate of 300 gpd/acre (43,560 SF), unless a community sewerage system method of disposal is provided and/or transferred wastewater credits are acquired and redeemed in accordance with SCDHS standards. Finally, the subject property is not located within any of the Long Island Special Groundwater Protection Areas (SGPA) and is not within the Long Island Central Pine Barrens area or any Town groundwater overlay protection district.

Groundwater on Long Island is derived entirely from precipitation. Precipitation percolating through the soil profile as groundwater recharge passes through the unsaturated zone to a depth, below which all strata are saturated, known as the "water table" or "zone of saturation." The groundwater table is equivalent to sea level where it interfaces with salt water along the north and south shores of Long Island, and rises in elevation toward the center of the Island creating a large "lens" of potable drinking water. The high point of this parabola is referred to as the groundwater divide which separates generally northerly flowing groundwater from generally southerly flowing groundwater. The change in water table elevation over distance creates a hydraulic gradient (i.e., a sloping water table) which causes groundwater to flow down-gradient under gravity. The subject parcel is located south of the regional groundwater divide, and, based on the orientation of the groundwater elevation contours depicted in **Figure 2-3**, it can be assumed that the direction of flow within the water table aquifer is generally toward the southeast across the site before trending in a more southerly direction toward Bellport Bay, south of the property.

Figure 2-3 indicates that the groundwater table (in the Upper Glacial aquifer) in the area of the subject site ranges between approximately 25 feet above mean sea level (msl) at the south end of the subject property to about 28 feet above msl at the north end; although seasonal changes and fluctuations in precipitation rates can affect water table levels slightly. **Figure 2-1** shows that the lowest ground surface elevation at the property is 60± feet above msl and the highest is 70± feet; therefore, the minimum depth to groundwater near the southwest corner of the property where

the ground surface elevation is 60 feet above msl and the water table elevation is 25 feet above msl, is 35± feet beneath grade.

Groundwater Quality

Public Water Supply - The subject site is located within the SCWA Central Island Intermediate Zone in Service Distribution Area No. 12. The nearest water supply well to the subject property is the Station Road wellfield which is located adjacent to the site along the east side of Station Road. In addition to three wells, the Station Road wellfield also contains a pump station and stand pipe. According to the SCWA, the three wells draw from the Upper Glacial Aquifer. Two of the wells and the standpipe serve Pressure Zone 1 while the third well serves Pressure Zone 12 which would provide water supply for the site. Part of the subject property is within a Water Supply Sensitive Area as defined in Article 7 of the SCSC, and part of the property lies within the two-year capture zone of Wells 1A and 2A.

Public supply wells are routinely monitored by SCWA and SCDHS to ensure the continued delivery of potable drinking water to SCWA's customers. NP&V obtained SCWA's annual 2017 Drinking Water Quality Report to review 2016 water quality monitoring results for Distribution Area #12 and determine the general status and quality of the supply. These data contain the results of tests conducted for 106 different water quality parameters, including various radiologicals, inorganic constituents (IOCs), synthetic organic compounds (SOCs), volatile organic compounds (VOCs), disinfectants, disinfectant byproducts (chlorination), and pharmaceuticals and personal care products. The 106 parameters that were tested for throughout 2016 were tested many times resulting in thousands of individual monitoring results. Of the water quality parameters that have been assigned a maximum contaminant level (MCL) by the Environmental Protection Agency (EPA), only iron, a naturally occurring IOC was found to exceed its MCL during the 2016 calendar year. The MCL established for iron in drinking water is 300 µg/l (i.e., parts per billion (ppb)); however, according to the 2016 data, the highest iron concentration in a sample of Distribution Area 12's drinking water was 691 µg/l which far exceeds the MCL. The average concentration of the 469 samples taken from Distribution Area 12 in 2016, however, was 63 µg/l, which is well below the MCL. The lowest concentration was "ND" or "no detection" which indicates that the element, chemical or constituent was not present or was so low that it could not be detected using contemporary water quality measurement techniques.

Nitrate, which is an inorganic compound of local concern for both human health and environmental concerns at elevated levels, was found to be consistently below the MCL of 10 mg/L (parts per million or "ppm") in 2016; however, the maximum concentration detected in Distribution Area 12's drinking water supply was 8.14 mg/L, which is generally considered to be above typical natural ambient levels. Moreover, the average nitrate level, based on 479 nitrate samples taken in 2016, was 4.07 mg/L which is less than half of the standard. Again the lowest recorded value was "ND or "no detection." Some potential sources of nitrate include fertilizers, sanitary system discharge, stormwater runoff, animal wastes, and atmospheric deposition.

Based on the data provided, groundwater quality within the contributing area of Distribution Area 12's wells appears to be good to excellent. The summary of 2016 groundwater quality data for SCWA Distribution Area 12 is provided in **Appendix C**. The SCWA, in its January 17, 2018

correspondence to NP&V, confirmed this finding, stating that "at this time there [are] no known water quality issues in the area" (**Appendix D**).

SCDHS has established what it refers to as "Water Supply Sensitive Areas" (WSSAs) which are defined in part as: "Areas in close proximity to existing or identified future public water supply wellfields." In general, 'close proximity' means within 1,500 feet upgradient or 500 feet downgradient of public supply wells screened in the Upper Glacial aquifer."[3] Upgradient portions of the site (north of the wellfield) are within the WSSA. The purpose of this designation is to regulate certain land uses that may have a detrimental effect on public water supplies due to proximity and on-site activities that may be hazardous. **Figure 2-9** shows the area downgradient of the wellfield that is within 500 feet of the closest well and therefore within the WSSA. As previously indicated the contamination plume from the Brookhaven Landfill which is east of the site flows to the southeast and is not near the subject site.

Nelson, Pope & Voorhis, LLC (NP&V) utilizes a microcomputer model developed for its exclusive use in predicting both the water budget of a site and the concentration of nitrogen in recharge. The model, named **SONIR** (**S**imulation **O**f **N**itrogen **I**n **R**echarge), utilizes a mass-balance concept to determine the nitrogen concentration in recharge. Critical to determining nitrogen concentration is a detailed analysis of the various components of the hydrologic water budget, including recharge, precipitation, evapotranspiration and overland runoff.

The **SONIR** model includes four sheets of computations: 1) Data Input Field; 2) Site Recharge Computations; 3) Site Nitrogen Budget; and 4) Final Computations. All information required by the model is input in Sheet 1. Sheets 2 and 3 utilize data from Sheet 1 to compute the Site Recharge and the Site Nitrogen Budget. Sheet 4 utilizes the total values from Sheets 2 and 3 to perform the final Nitrogen in Recharge computations. Sheet 4 also includes tabulations of all conversion factors utilized in the model.

It should be noted that the simulation is only as accurate as the data which is input into the model. An understanding of hydrologic principles is necessary to determine and justify much of the data inputs used for water budget parameters. Further principles of environmental science and engineering are applied in determining nitrogen sources, application and discharge rates, degradation and losses, and final recharge. Users must exercise caution in arriving at assumptions in order to ensure justifiable results. There are a number of variables, values and assumptions concerning hydrologic principles, which are discussed in detail in a user manual developed for the SONIR Model. This user manual is provided in **Appendix E-1**.

The SONIR model was run to obtain the existing water budget and nitrogen concentration in recharge. The run was based on current site conditions and 52.95 acres of natural area. The 52.95-acre site currently has a total estimated site recharge of 35.08 million gallons per year (MG/Y), a total annual nitrogen load of 23.64 lbs./year, and a total nitrogen recharge concentration of 0.08 milligrams per liter (mg/l). The results of this analysis are presented in **Appendix E-2** and **E-3**.

[3] Suffolk County Sanitary Code, Article 7, "Water Pollution Control," 6/30/93, Page 7.

2.2.2 Potential Impacts

Surface Water and Drainage

Since there are no wetlands on-site as determined by on-site field inspections and no natural or artificial wetlands on or near the property that are within NYSDEC or Town wetlands jurisdictions, no particularly vulnerable surface waters or wetland systems were identified. An estimated 11.21 acres or 21.17 percent of the property will remain in its natural forested/vegetated condition and another 15.33 acres or 28.95 percent of the property will be landscaped with turf, trees, shrubs and flowers. As a result, a total of 26.54 acres or 50.12 percent of the property will be pervious natural or landscaped ground that will help to recharge, absorb and transpire precipitation falling on the site and mitigate runoff impacts. In addition, the Applicants plan to install a system of stormwater catch basins and leaching pools to recharge runoff on-site and may or may not seek to discharge runoff to the recharge basin that is adjacent to the southeast corner of the property which is believed to have been deliberately oversized to accommodate the subject site. The project will also connect to the Twelve Pines STP, subject to final SCSA approval, which will help to protect groundwater quality.

The Town of Brookhaven requires that all stormwater runoff generated on a development site be retained and recharged in an on-site drainage system designed to accommodate a five-inch rainfall event. The project's drainage system will have a capacity that equals or exceeds the minimum volume required by the Town and all stormwater collected in on-site drainage collection systems will be directed to subsurface leaching pools and recharged into the ground on-site or may be discharged to the recharge basin located adjacent to the southeast corner of the property, subject to drainage and grading review and coordination with the Town Highway Department during the future site plan review stage. Erosion and sedimentation controls will also be put into place during site clearing, grading, and construction, thereby retaining sediment on the property and keeping it from being transported and deposited into street drainage systems or on to adjacent properties. Dust controls will also be employed as needed. Landscaping plans that comply with the Town's policies and guidelines will be submitted to the Planning Board during the site plan review stage and the Applicant and its consultants will work with the Town and SCWA to ensure that this plan avoids or limits the need for excessive irrigation and fertilization in order to protect the integrity of stormwater runoff and the quality of the Sole Source Aquifer, as well as to reduce overall potable water consumption.

Site development will alter both the drainage pattern and volume of runoff generated on the site. Runoff generated within the site will increase in terms of total volume due to a significant increase in impervious surfaces on-site including buildings, parking lots, internal streets, driveways, and sidewalks as well as the clearing of trees and other vegetation that absorb water and promote evapotranspiration on the currently vacant and wooded property. The Proposed Action, however, involves the retention of 11.21 acres of natural woodland and the planting of 15.33 acres of landscaping totaling 26.54 acres of vegetated land or 50.12± percent of the 52.95-acre site. Moreover, since there are no regulated wetlands or surface waterbodies nearby and considerable depth to groundwater, which is estimated to range between 35 to 44 feet below the ground surface (bgs), thereby providing considerable separation distance between ground and water table for natural filtration, subsurface water storage, and some natural treatment, significant water quality impacts are not expected. It is expected that some hardscaping will be used in proposed recreation areas, as well as native and non-fertilizer dependent landscaping to limit the potential use of fertilizers.

The Grading, Drainage, and Erosion and Sediment Control Plans to be prepared as part of the formal site plan submission, will be designed by a professional engineer in accordance with applicable State and Town standards and will be subject to review and approval by the Town Engineer and Planning Board prior to plan approval. This review must ensure that the site drainage system is properly designed to address runoff, that adequate capacity is provided and that the proposed structures minimize potential runoff issues to the maximum extent practicable.

With regard to topography, the property is relatively flat and soil redistributed by grading, excavations or any necessary cutting or filling is expected to be retained on-site, backfilled where necessary and worked back into the property by grading to "balance" the site, thereby eliminating the need for soil importation or exportation. Clearing and grading required to develop the site will nevertheless leave soils temporarily exposed and vulnerable to erosion from wind and rain during the site preparation and construction processes. For this reason, an Erosion and Sediment Control Plan will be prepared in accordance with applicable NYSDEC Guidelines for Urban Erosion and Sediment Control, and will include the following mitigative measures as warranted:

- The construction process will begin with the establishment of flagged clearing limits where needed, followed by installation of erosion control measures.
- Silt fencing, staked hay bales, inlet protection, and good housekeeping procedures will be utilized where applicable.
- A stabilized construction entrance or "rumble strips" will be installed at the site entrance during site preparation and construction to prevent soil from adhering to truck tires and being tracked onto public streets.
- Once heavy construction is completed and site utilities are installed, finish grading will be initiated, followed by soil preparation using topsoil mix if needed, final seeding and the planting of site landscaping.
- The drainage system will further provide permanent stormwater controls once construction is completed.
- Construction equipment and vehicles will be parked and loaded/unloaded within the site and off of adjacent rights-of-way.

As a result of the site conditions, proposed development and stormwater management as well as erosion control measures that are inherent in the project and described above, the proposed project is not expected to adversely impact surface water or drainage conditions on or in the vicinity of the subject site.

<u>South Shore Estuary Reserve Watershed (Mud, Abets and Hedges Creek Sub-watersheds)</u>
The main topics of concern associated with the protection of the SSER and the overall goals and recommendations of the SSER CMP can be broken down into four classifications:

1. Improving and maintaining water quality;
2. Protecting and preserving living resources in the Reserve;
3. Expanding public use and enjoyment of the estuary; and
4. Sustaining and expanding the estuary related economy.

The subject property falls within the SSER watershed but is far enough inland to be outside of the SSER CEA which is present primarily along the shoreline. Even though the subject site is

located at an inland location (at least 2.3 miles) from the SSER, its presence within the greater SSER watershed and the sub-watersheds of the Mud, Abets and Hedges Creeks, suggests that there is a small potential for minor impacts. However, as previously indicated the headwaters of the three creeks are separated from the subject property by the Sunrise Highway ROW and are considerable distances from the subject site, making the possibility of significant environmental impacts very unlikely.

Potential impacts to the SSER from a project such as the Crest Town Center typically arise from the individual and/or cumulative effects of site clearing, grading, construction, the specific types of land uses to be constructed and functioning, and the ultimate occupation and related human activities of future residents and commercial uses. This can include the effects of on-site wastewater generation and disposal (if the project was not connecting to an advanced sewage treatment facility), fertilization of landscaping, pesticide applications (none are proposed) and stormwater runoff and infiltration which can recharge pollutants that have been picked up from the ground surface and carried to surface waters or discharged into the ground which can leach into surface waters via underflow. Soil erosion, transport, and deposition into wetlands or surface waters, the most common stormwater pollutant during construction activities, can also affect surface waters if not properly controlled. The above-described processes can adversely affect surface water quality, dissolved oxygen concentrations, biological/ ecological communities (mostly fish and shellfish) and the recreational and economic uses and enjoyment of the SSER's surface water resources. Nevertheless, the subject property is a considerable distance from the SSER and its closest perennially flowing tributaries; is separated from these waterbodies by Sunrise Highway and various other natural and man-made features; and does not have any direct open water connections, hydrologic connections or known conduits to these surface water bodies, which significantly reduces any possible impacts to waterbodies in the region.

The capture of stormwater runoff and recharge into the ground using leaching pools or recharge basins in developed areas such as the subject site, provide various surface water quality benefits through the processes of soil filtration, pollutant sequestration, chemical and biological processes that breakdown pollutants and subsurface dispersion. Moreover, connection to the Twelve Pines STP will help to ensure that wastewater generated on the property is not discharged on-site or improperly treated. The nitrate removal capabilities of the STP will help to ensure that sewage is properly treated before it is recharged into the ground. The above mitigation, along with maintaining over 13 acres of land in its natural condition and using native or well-adapted plants as part of the landscaping program to reduce the potential for water quality impacts like eutrophication and low dissolved oxygen concentrations in water (hypoxia) will also help. In addition, while there is very little to no concern from flooding or on-site drainage or site disturbances, erosion and sedimentation controls will be implemented during site preparation and construction to ensure that surface waters will not be affected by these processes.

Considering the existing industrial zoning of the property in comparison to the proposed residential and commercial uses associated with Crest Town Center, with connection to an existing SCDPW STP, it is expected that potential water resource impacts will be reduced by the proposed project as compared to development under existing zoning. Also, it should be noted that Town and State agencies regulate activities in and around surface waters and wetlands

through wetlands protection programs and by requiring that permits be issued before certain work or land uses and activities that may affect the integrity of surface water resources are performed. Since there are no known nearby surface waters or wetlands, such permits are not necessary.

Proximity to Mud Creek, Abets Creek and Hedges Creek was discussed and mapped in **Section 2.2.1** above. The considerable distance and lack of surface water and/or groundwater connection to these creeks indicates that no significant adverse impact is expected on these water features as a result of the proposed project.

Finally, it should be noted that groundwater flowing beneath the site is expected to flow in a south-southeasterly direction, toward Beaverdam Creek and the greater SSER, based on groundwater table contours (**Figure 2-3**) and may ultimately discharge via underflow and seepage into that surface water system. However, as previously discussed, the various mitigations outlined above and the considerable subsurface travel time for groundwater to reach Beaverdam Creek (likely years) provide considerable protection to this waterbody. See also discussion on groundwater below.

Based on the preceding review, area conditions and proposed safeguards and mitigation strategies, the Proposed Action is not expected to result in any significant adverse environmental impacts on water quality or other resources and benefits of the SSER or its bays and tributaries. The project will also not have any significant impact on the recreational and economic resources of the SSER and is considered to be consistent with the overall goals and objectives of the SSER CMP.

<u>Groundwater Hydrology/Hydrogeology</u>
The depth to groundwater at the site ranges between 35 and 44 feet bgs and the permeable nature of the Upper Glacial deposits and surface soils at the site promote groundwater recharge and horizontal groundwater flow away from stormwater leaching pools and/or recharge areas. If any restrictive soil layers are encountered within any proposed leaching area, this soil will be removed and replaced with clean fill of an appropriate soil texture to facilitate leaching and recharge. Consequently, it is not anticipated that the direction of horizontal flow of groundwater would be affected by the expected increase in localized recharge, as the overall slope of the water table controls this characteristic and localized effects from mounding would be expected to be isolated to the designated leaching areas with permeable soils and wastewater from the project site will be pumped to the SCSD Twelve Pines STP for treatment and disposal.

There are no natural surface water bodies or wetlands on or near the site that could be affected by an increase in recharge and the associated limited and localized hydrologic changes anticipated. Treatment and discharge of wastewater at the Twelve Pines STP is not only beneficial in terms of the level of sewage treatment provided and the quality of effluent to be discharged at the facility but also will prevent possible impacts to the SCWA wellfield located adjacent to the proposed Crest Town Center site, if wastewater was to otherwise be treated and discharged on-site. The applicant will work with the Town and SCWA to reduce or conserve potable water use on the property by considering water efficient irrigation systems and indoor fixtures and by retaining an estimated 24.8 percent of the site in a naturally vegetated condition.

Based on NP&V's SONIR model, total existing on-site recharge is estimated to be 35.08 million gallons per year (mgy) and future recharge is projected to be 51.32 mgy.

Groundwater Quality

Public Water Supply - The 2016 groundwater data for Distribution Area/Pressure Zone 12 provided in **Appendix C** and correspondence from the SCWA provided in **Appendix D** indicate good to excellent water quality at the site with the exception of iron and occasional nitrate concentrations that are sometimes above typical ambient levels but still within the required MCL threshold established by federal and state authorities and implemented locally.

Iron is a naturally occurring inorganic mineral that is commonly detected in groundwater at elevated levels. It poses little threat to human health but can impart a metallic taste in drinking water, discolor water making it less desirable for drinking, and can stain fixtures and clothing that are washed in it, if left untreated. Despite the exceedance(s) of the MCL for iron, this compound can and is easily and routinely removed as needed by water purveyors as part of typical water quality monitoring and treatment processes.

Nitrate in groundwater can cause health effects in human infants when existing in very high concentrations and can cause eutrophication (over-enrichment) of wetlands, particularly tidal wetlands, which can affect dissolved oxygen concentrations in tidal surface waters and wetlands, leading to hypoxic or anoxic conditions that adversely affect fish and shellfish populations. As previously noted, the highest concentration recorded from the 479 nitrate samples taken from SCWA Distribution Area 12 wells in 2016, was below the 10 mg/L MCL for nitrate. Nevertheless, the project will be required to connect to an approved STP that is designed to provide advanced nitrate treatment, thereby significantly reducing nitrate loading from the Proposed Action and elevated concentrations in drinking water. Attention will be given to the materials used for future landscaping to ensure that the species to be planted are either native to the area or well-adapted to area conditions to minimize the need for fertilization.

The proposed project exceeds the SCDHS's allowable flow for conventional on-site sanitary systems, and therefore, as previously noted, must either utilize an on-site advanced sewage treatment facility or connect to a local STP to provide an acceptable level of treatment. Since the project is located in close proximity to Suffolk County Sewer District No. 7, the Applicant plans to connect the proposed development to the District's nearby Pump Station No. 5 and area sewer mains. Application to SCSA and SCDPW are pending. Connection to public sewers at the Twelve Pines STP provides for the necessary wastewater treatment, and therefore, minimizes any potential effects of on-site wastewater discharges; particularly, nitrate loading that can adversely affect groundwater and drinking water quality. In addition, it is recommended that to the extent practicable, landscaping at the site should consist of native or well-adapted plant species that require minimal if any fertilization. This will further reduce the overall nitrate load from site development and fertilization of landscaping, while also reducing irrigation demands. A total of 11.21 acres or 21.17 percent of the site will remain in its natural condition which will reduce the need for site landscaping and help to mitigate potential groundwater quality issues associated with fertilization; not to mention water quantity issues from excessive irrigation. Finally, the site is currently vacant woodland and is not known to have been contaminated by any past land uses or site activities, thereby providing a safe and clean site for development.

The recharge of stormwater on-site and/or in the existing adjacent Town owned stormwater recharge basin to the southeast subject to drainage and grading review and coordination with the Town Highway Department during the future site plan review stage , will result in an increase in groundwater volume as compared to existing natural and pervious ground conditions; however, as previously mentioned wastewater from the development would not be recharged on-site and instead will be recharged at the County's Twelve Pines STP. It is anticipated that the homeowners association for the residential component of the development will hire a professional landscaper to care for and maintain the grounds and that vegetation identified in an approved landscape plan will be planted and properly maintained by the contractor. Due to the deep well-drained soils and significant land area comprising the site, issues relating to suitable permeability, filtering capacity, groundwater storage, and recharge of stormwater on-site are not expected.

In past correspondence received from SCWA **(Appendix D)** as well as ongoing meetings, several water quality/water use issues were raised and are addressed through project revisions. A previous version of the **Conceptual Site Plan** included a gasoline fueling station which has since been eliminated from the plan to ensure the protection of the SCWA wellfield, as this use would have been within the 0-2 year contributing area of the southernmost wells in the Station Road Well Field[4]. SCWA also previously expressed concern over water demand and that peak water demand during the irrigation season must be reduced through xeriscaping, multiple sprinkler heads/zones, and other water saving measures, as well as the potential need for an additional booster pump to provide adequate water supply pressure for the development. Project density was reduced after these comments, and water supply will be addressed through further coordination with SCWA to ensure that the water supply is protected and adequate water service is available for the proposed project.

Pharmaceuticals - The presence of pharmaceuticals in water has become more of a concern in the United States in recent years. However, when discovered, concentrations are usually very low (parts per trillion) and tend to be most prevalent near medical facilities, nursing homes, feedlots, or facilities that manufacture these substances. Since the proposed assisted living, PRC, and MF apartments will be connected to public sewers, significant impacts at the site from pharmaceuticals are not expected. In addition, SCWA now tests for pharmaceuticals in its water supplies and new programs for the proper disposal of unused and expired drugs which help to prevent or reduce the discharge of pharmaceuticals and personal care products to groundwater have been established. That is, instead of flushing these chemicals down the toilet and discharging them to septic systems, STPs, throwing them in the garbage, or dumping them into drains, expired or unused drugs can be turned in at designated "take back" program locations for proper disposal. Take back programs are in their infancy and there are few medication drop-off locations at the current time in Suffolk County with the exception of Suffolk County Police precincts. As information about the program becomes increasingly available, additional demand for more drop-off centers is likely to occur. Finally, as indicated in the 2016 water quality monitoring data for the Distribution Area, none of the pharmaceuticals or personal care products that were tested for exceeded any MCL threshold or even came close to any threshold.

[4] **Appendix D** includes Source Water Assessment Program maps of the groundwater contributing area to certain wells at the Station Road Well Field provided by SCWA at the meeting of January 25, 2018.

Based on a review of the available information, SCDHS's procedures and protocols for proper management and disposal of pharmaceutical wastes, and the results of the on-going SCDHS water quality monitoring program, no significant impact to human or ecological resources is expected from pharmaceutical contamination in groundwater or the public water supply.

Nitrogen Loading (SONIR Model Results)

The SONIR model discussed previously in this DEIS indicates that the total annual nitrogen load will increase from an estimated 23.64 lbs./year to 370.37 lbs./year and total recharge will increase from 35.08 mgy to 51.32 mgy. Overall nitrate loading concentration will increase from an existing estimated value of 0.08 mg/l to 0.87 mg/l, which is far below the potable drinking water standard of 10 mg/l used by federal, state and county agencies to regulate drinking water quality. The closest surface waterbody, Beaverdam Creek, is over a mile east-southeast of the subject site and is not expected to be significantly affected by the development.

Suffolk County Sanitary Code Article 7, "Water Pollution Control" and Article 12, Toxic and Hazardous Materials Storage and Handling Controls"

The subject property is located within Suffolk County's Central Island Intermediate Zone—Pressure Zone 12 and is located adjacent to SCWA's Station Road wellfield, sharing its northern, southern and easterly property boundaries with the proposed Crest Town Center property. According to Article 7 of the Suffolk County Sanitary Code, "Water Supply Sensitive Areas" are those "[a]reas in close proximity to existing or identified future public water supply wellfields. In general, for the purposes of [Article 7], 'close proximity' is within 1,500 feet upgradient or 500 feet downgradient of public supply wells screened in the Upper Glacial aquifer (**Figure 2-9**). As can be seen in **Figure 2-9**, NP&V conducted research that determined that wells at the Station Road wellfield are installed within the Upper Glacial Aquifer as confirmed by the SCWA and therefore portions of the site may be considered a Water Supply Sensitive Area). Article 7, §760-706 B.5.a. and b., "Deep Recharge Areas and Water Supply Sensitive Area, states that "[i]t shall be unlawful to use or store any restricted toxic or hazardous materials on any premises [within these areas] <u>except</u> as follows:

a. The materials are stored at a service station or similar installation solely incident to the distribution of gasoline, kerosene, diesel oil or other petroleum products for motor vehicular uses and repair; and
b. The facility for such storage is constructed in accordance with the requirements of Article 12 of the Suffolk County Sanitary Code for new construction

(emphasis added)

Since the **Conceptual Site Plan** no longer contains the previously proposed filling station, there will be no underground fuel storage tanks and future land uses will utilize natural gas rather than fuel oil, there will be no land uses on the site that would use, store, generate or dispose of any significant hazardous materials. The Applicant will continue to work with the SCWA to ensure

the proper siting and resource protection methods necessary and will work with the Town Planning Board and other involved agencies to ensure that the proposed project, its future land uses and the overall layout of the development will not adversely affect area water supplies.

Construction – There is a low potential for minor groundwater quality impacts during construction due to potential release of oil, hydraulic fluid, diesel or gasoline from construction vehicles and equipment stored and operated on-site which may be washed away by rainwater, or sediment that may have been contaminated during the construction process which may be transported off-site or into drainage structures by wind or rain. Equipment stored on-site for use during clearing and construction activities will be properly maintained to eliminate potential spills or leakage of fluids and reputable contractors will be used for all site work. Sediment will be controlled by watering soils that are temporarily exposed to the elements, if necessary, to control dust, seeding disturbed areas as soon as possible after clearing, installation of catch basin inlet protection as needed, placement of silt fencing around work areas, and use of construction entrance rumble strips to prevent tracking of pebbles and sediment onto streets.

Based on the preceding assessment of surface waters, wetlands and groundwater quality, and in consideration of the available impact mitigation techniques proposed, no significant adverse impacts on the quality of these important resources are expected.

2.2.3 Mitigation

- The site's drainage system will be designed in accordance with Town drainage requirements, and will be subject to review and approval by the Town Engineer and Planning Board.
- The project will connect to an existing tertiary level treatment STP to ensure adequate sewage treatment, including dramatically reduced nitrogen levels in sewage effluent.
- The project also involves the purchase and redemption of a total of 24.35 Pine Barrens Credits ("PBCs") to offset requested development density pursuant to Article XV, "Multifamily Residence Districts," § 85-280, "Density (units per acre)" of the Town Code and a $125,887.50 contribution to the Joseph Macchia Environmental Preservation Capital Reserve Fund for the commercial component that will preserve environmentally sensitive land within the Central Pine Barrens.
- 24.35$125,887.50The proposed project will be designed to conform to Article 6, "Realty Subdivisions, Developments and Other Construction Projects," of the Suffolk County Sanitary Code regulations, which is intended to protect groundwater quality, by requiring the proposed development to connect to an STP or a private on-site treatment facility that provides advanced wastewater treatment including the treatment of nitrogen.
- The project will connect to the local SCWA water supply to ensure a potable water supply is available to future residents and patrons of site. Water conserving fixtures and efficient irrigation systems in several zones throughout the site will be incorporated into the site development and 11.21± acres or 21.17 percent of the site will remain in a naturally vegetated state, thereby limiting total landscaping and turf coverage. Native landscape species will be used to the extent practicable to reduce the need for watering and fertilizer applications, with total fertilizer dependent landscaping to be roughly 15 percent or less of the site.
- Precautions will be taken to ensure sediment will not be transported off-site by wind, stormwater runoff or vehicle tracking and strict conformance to grading and erosion and sedimentation control measures and permit requirements will occur during construction activities.

- If required, a SWPPP will be prepared to ensure compliance with water quality and quantity requirements pursuant to Technical Guidance and GP 0-10-001 and Town of Brookhaven requirements. In addition, an erosion control plan will be prepared incorporating the NYSDEC Guidelines for Urban Erosion and Sediment Control.

2.3 Ecology

2.3.1 Existing Conditions

Vegetation

The project site is a predominately wooded lot surrounded by a residential development to the east, commercial development to the west, a County Road to the north and Sunrise Highway to the south. Large areas of contiguous vegetation are generally not present in the area, as the landscape is highly fragmented and developed, with the exception of Wertheim National Wildlife Refuge and Southaven County Park which are 1.0 to 2.5 miles to the east of the project site.

The 52.95-acre subject parcel was inspected on September 15, 2017 and October 20, 2017. Qualifications of NP&V staff that inspected the subject parcel are included in **Appendix F**. The predominant cover type can be categorized as pitch pine-oak forest as defined by the classification system developed by the NYSDEC **(Edinger *et al.*, 2013).** A system of dirt trails bisects the woodland in the northernmost reached of the site. The existing site habitat quantities as determined by aerial photography and field inspections by NP&V are presented in **Table 2-2. Figure 2-10** provides a habitat map of the subject property. Below is a detailed description of the habitat types found on site along with a list of species present or expected on the site.

Edinger (2013), defines pitch pine-oak forest as "*a mixed forest that typically occurs on well-drained, sandy soils of glacial outwash plains or moraines; it also occurs on thin, rocky soils of ridgetops. The dominant trees are pitch pine (Pinus rigida) mixed with one or more of the following oaks: scarlet oak (Quercus coccinea), white oak (Q. alba), red oak (Q. rubra), or black oak (Q. velutina). The relative proportions of pines and oaks are quite variable within this community type. Examples can range from having widely spaced pines that are often emergent above the oak canopy to a nearly pure stand of pines with only a few widely spaced oak trees. The shrub layer is well-developed with scattered clumps of scrub oak (Quercus ilicifolia) and a nearly continuous cover of low heath shrubs such as lowbush blueberries (Vaccinium pallidum, V. angustifolium) and black huckleberry (Gaylussacia baccata). The herbaceous layer is relatively sparse; characteristic species are bracken fern (Pteridium aquilinum var. latiusculum), wintergreen (Gaultheria procumbens), and Pennsylvania sedge (Carex pensylvanica).*" The 52.95 acres of pitch pine-oak forest dominates the property. Dominant canopy species observed include pitch pine (*Pinus rigida*) and white oak (*Quercus alba*). Other species found on site include scrub oak (*Quercus ilicifolia*), black cherry (*Prunus serotina*), blackjack oak (*Quercus marilandica*), bigtooth aspen (*Populus grandidentata),* lowbush blueberry (*Vaccinium pallidum*), spotted wintergreen (*Chimaphila maculata*), sweetfern (*Comptonia peregrina*) and pennsylvania sedge (*Carex pensylvanica*). It should be noted that the overall quality of the forest found on the edges of the subject site is diminished due to the

significant presence of invasive species (particularly mugwort and autumn olive) located along the disturbed edges of the habitat patch.

Table 2-2
HABITAT QUANTITIES
Existing Conditions

Coverage Type	Site		Development Area	
	acres	% of site	acres	% of site
Pitch pine-oak forest	52.95	100.00%	52.95	100.00%
TOTAL	**52.95**	**100.00%**	**52.95**	**100.00%**

Table 2-2 presents a list of vegetation observed or expected on site given the habitats present; it is based upon field investigations conducted by NP&V on September 15, 2017 and October 20, 2017. This list is not meant to be all-inclusive but was prepared as part of several field inspections to provide a detailed representation of what is found on site. Care was taken to identify any species that might be unusual for the area.

Table 2-3
VEGETATION SPECIES

Tree species	
* eastern red cedar	*Juniperus virginiana*
* pitch pine	*Pinus rigida*
* bigtooth aspen	*Populus grandidentata*
* black cherry	*Prunus serotina*
* white oak	*Quercus alba*
scarlet oak	*Quercus coccinea*
* scrub (bear) oak	*Quercus ilicifolia*
mossycup (bur) oak	*Quercus macrocarpa*
* blackjack oak	*Quercus marilandia*
northern red oak	*Quercus rubra*
post oak	*Quercus stellata*
black oak	*Quercus velutina*
sassafras	*Sassafras albidum*
Shrub species	
chokeberry	*Aronia sp.*
* Oriental bittersweet	*Celastrus orbiculatus [i]*
American bittersweet	*Celastrus scandens [p]*
meadowsweet	*Spiraea corymbosa*
* sweetfern	*Comptonia peregrine*
* autumn olive	*Elaeagnus umbellata*
* black huckleberry	*Gaylussica baccata*
golden heather	*Hudsonia ericoides*
honeysuckle	*Lonicera sp.*
* Japanese honeysuckle	*Lonicera japonica*
stagger-bush	*Lyonia mariana*
* northern bayberry	*Myrica pensylvanica [p]*
* virginia creeper	*Parthenocissus quinquefolia*
common buckthorn	*Rhamnus cathartica [i]*
smooth buckthorn	*Rhamnus frangula [i]*

	winged sumac	*Rhus copallina*
	smooth sumac	*Rhus glabra*
	brambles	*Rubus sp.*
*	greenbrier	*Smilax opaca*
*	poison-ivy	*Toxicodendron radicans*
*	low bush blueberry	*Vaccinium angustifolium*
*	highbush blueberry	*Vaccinium corymbosum*

Herbs and Groundcover Species

*	sandplain gerardia	*Agalinis acuta [e][E]*
	ragweed	*Ambrosia artemisiifolia*
	little bluestem	*Andropogon scoparius*
	big bluestem	*Andropogon gerardii*
	bearberry	*Arctostaphylos uva-ursi*
*	mugwort	*Artemisia vulgaris*
*	aster sp.	*Aster sp.*
	stiff-leaved aster	*Aster linariifolius*
*	Pennsylvania sedge	*Carex pensylvania*
*	spotted wintergreen	*Chimaphila maculata [p]*
	stripped pipsissewa	*Chimaphila umbellata [p]*
	ladyslipper	*Cypripedium sp.*
	wintergreen	*Gaultheria procumbens [p]*
*	sweet everlasting	*Gnaphalium obtusifolium*
	orange grass	*Hypericum gentianoides*
	pinweed	*Lechea villosa*
*	bushclover	*Lespedeza sp.*
	round-headed bush clover	*Lespedeza capitata*
	hairy bush clover	*Lespedeza hirta*
	trailing bush clover	*Lespedeza procumbens* wild lupine *Lupinnus perenis*
*	Indian pipe	*Monotropa uniflora*
*	panic grass	*Panicum sp.*
	bluegrass	*Poa sp.*
	jointweed	*Polygonella articulata*
*	bracken fern	*Pteridium aquilinum*
	milkwort	*Polygala nuttallii*
	hair cap moss	*Polytrichium sp.*
*	goldenrod	*Solidago sp.*
*	slender-leaved goldenrod	*Solidago tenuifolia*
	Indian grass	*Sorghastrum nutans*
	goat's-rue	*Tephrosia virginiana*
*	purpletop grass	*Tridens flavus*

* Species identified on site during field visits by NPV Staff.
[e] NYS endangered species
[i] NYS invasive species (no legal status)
[p] NYS exploitably vulnerable protected plant
[E] Federally endangered species

Wildlife

Site inspections were performed on September 15, 2017 and October 20, 2017 by NP&V staff. Relatively few wildlife species other than song birds were observed or detected on site, although it is expected that the woodland and terrestrial cultural habitats on the property should support a number of wildlife species common to suburban habitats, particularly those species that are more

tolerant of human activity. Species that avoid humans and/or those species that are sensitive to development are less likely to inhabit the site. The following paragraphs describe the wildlife observed or expected on site. Further detail regarding potential wildlife on site and adaptability to a change in habitat is provided in **Appendix G.**

Birds- Avian species which might be expected on the property include a variety of woodpeckers, wrens, titmice, nuthatches, thrushes, creepers, flycatchers, swallows, warblers, corvids, thrashers, orioles and blackbirds, doves, starling, grosbeaks, finches, towhees and sparrows. During the warmer months, a variety of warblers may also migrate into the area. Owls and raptors may use the site for hunting and limited numbers may breed in the surrounding areas. The subject site is not expected to be critical habitat for any avian species utilizing the site.

During the September and October site visits, blue jays and American robins were seen and heard. In order to provide a more detailed representation of the avian species potentially present on site, the NYS Breeding Bird Atlas was reviewed to obtain data from the 2000-2005 Breeding Bird Survey for the census block encompassing the subject parcel (**Appendix H)**. This study surveyed the entire State by 25 km² census blocks over a five-year period (2000 to 2004) to determine the bird species which breed within the State. Most of the species listed by the NYSDEC breeding bird survey are likely to be found on site. No unique species or species of special concern are expected given the surrounding site uses.

Table 2-4
BIRD SPECIES

	Cooper's hawk	*Accipiter cooperii*
	sharp-shinned hawk	*Accipiter striatus*
	long-eared owl	*Asio otus*
	tufted titmouse	*Baeolophus bicolor*
	cedar waxwing	*Bombycilla cedrorum*
	great-horned owl	*Bubo virginianus*
	red-tailed hawk	*Buteo jamaicensis*
	broad-winged hawk	*Buteo platypterus*
	Northern flicker	*Colaptes auratus*
	whip-poor-will	*Caprimulgus vociferous*
	Northern cardinal	*Cardinalis cardinalis*
	pine siskin	*Carduelis pinus*
	American goldfinch	*Carduelis tristis*
	house finch	*Carpodacus mexicanus*
	purple finch	*Carpodacus purpureus*
	veery	*Catharus fuscescens*
	hermit thrush	*Catharus guttatus*
	brown creeper	*Certhia familiaris*
	chimney swift	*Chaetura pelagica*
	killdeer	*Charadrius vociferus*
	common nighthawk	*Chordeiles minor*
	common flicker	*Colaptus auratus*
	rock dove	*Columba livia*
	Eastern wood-peewee	*Contopus virens*
	American crow	*Corvus brachyrhynchos*
*	blue jay	*Cyanocitta cristatta*
	black-throated blue warbler	*Dendroica caerulescens*
	yellow-rumped warbler	*Dendroica coronata*

prairie warbler	*Dendroica discolor*
chestnut-sided warbler	*Dendroica pensylvanica*
yellow warbler	*Dendroica petechia*
pine warbler	*Dendroica pinus*
gray catbird	*Dumetella carolinensis*
least flycatcher	*Empidonax minimus*
Acadian flycatcher	*Empidonax virescens*
American kestrel	*Falco sparverius*
Common yellowthroat	*Geothlypis trichas*
barn swallow	*Hirundo rustica*
wood thrush	*Hylocichla mustelina*
northern oriole	*Icterus galbula*
Northern (dark-eyed) junco	*Junco hyemalis*
red-headed woodpecker	*Melanerpes erythrocephalus*
song sparrow	*Melospiza melodia*
Northern mockingbird	*Mimus polyglottos*
black-and-white warbler	*Mniotilta varia*
brown-headed cowbird	*Molothrus ater*
great-crested flycatcher	*Myiarchus crinitus*
common screech owl	*Otus asio*
black capped chickadee	*Parus atricapillus*
tufted titmouse	*Parus bicolor*
house sparrow	*Passer domesticus*
Savannah sparrow	*Passerculus sandwichensis*
fox sparrow	*Passerella iliaca*
indigo bunting	*Passerina cyanea*
ring-necked pheasant	*Phasianus colchicus*
rose-breasted grosbeak	*Pheucticus ludovicianus*
downy woodpecker	*Picoides pubescens*
hairy woodpecker	*Picoides villosus*
rufous-sided towhee	*Pipilo erythrophthalmus*
scarlet tanager	*Piranga olivacea*
black-capped chickadee	*Poecile atricapillus*
purple martin	*Progne subis*
common grackle	*Quiscalus quiscula*
ruby-crowned kinglet	*Regulus calendula*
golden-crowned kinglet	*Regulus satrapa*
ovenbird	*Seiurus aurocapillus*
American redstart	*Setophaga ruticilla*
white-breasted nuthatch	*Sitta carolinensis*
yellow-bellied sapsucker	*Sphyrapicus varius*
American goldfinch	*Spinus tristis*
chipping sparrow	*Spizella passerina*
field sparrow	*Spizella pusilla*
Eastern meadowlark	*Sturnella magna*
European starling	*Sturnus vulgaris*
brown thrasher	*Toxostoma rufum*
Caolina wren	*Thryothorus ludovicianus*
house wren	*Troglodytes aedon*
* American robin	*Turdus migratorius*
Eastern kingbird	*Tyrannus tyrannus*
barn owl	*Tyto alba*
blue-winged warbler	*Vermivora pinus*
yellow throated vireo	*Vireo flavifrons*
red-eyed vireo	*Vireo olivaceus*

mourning dove	*Zenaida macroura*
white-crowned sparrow	*Zonotrichia leucophrys*

* Species observed on site by NP&V staff during field visits.

Mammals - During the site visits conducted on September 15, 2017 and October 20, 2017, white tailed deer (*Odocoileus virginianus*) and eastern grey squirrels (*Sciurus carolinensis*) were seen on the subject property. The habitats found on the proposed project site are expected to support a number of mammal species. Small rodents and insectivores such as mice, shrews and voles are expected to be the most abundant mammals, but the property and surrounding area should also support larger mammals.

Table 2-5 is a list of the mammal species that are expected to occur on the property because of existing conditions on-site and in the surrounding area. This list is not meant to be all-inclusive but is intended to provide a list of the most common species.

Table 2-5
MAMMAL SPECIES

short-tailed shrew	*Blarina breuicauda*
least shrew	*Cryptotis parva*
Virginia opossum	*Didelphis virginiana*
big-brown bat	*Eptesicus fuscus*
southern-flying squirrel	*Glaucimys volans*
eastern milk snake	*Lampropettis d. triangulum*
silver-haired bat	*Lasionycteris noctivagans*
hoary bat	*Lasiurus borealis*
woodchuck	*Marmota monax*
striped skunk	*Mephitis mephitis*
pine vole	*Microtus pinetorum*
house mouse	*Mus musculus*
Keen's bat	*Myotis keenii*
little-brown bat	*Myotis lucifugus*
* white-tailed deer	*Odocoileus virginianus*
white-footed mouse	*Peromyscus leucopus*
Eastern pipistrelle	*Pipistrellus subflavus*
racoon	*Procyon lotor*
Norway rat	*Rattus norvegicus*
black rat	*Rattus rattus*
Eastern mole	*Scalopus aquaticus*
* Eastern gray squirrel	*Sciurus carolinensis*
masked shrew	*Sorex cinereus*
Eastern cottontail	*Sylvilagus floridanus*
Eastern chipmunk	*Tamis striatus*
red fox	*Vulpes vulpes*
meadow-jumping mouse	*Zapus hudsonicus*

* Species observed on site by NP&V staff during field visits.

Amphibians and Reptiles - The site may support a limited number of terrestrial species. Two toads are common on Long Island in upland habitats. The spadefoot toad occurs in woods, shrublands and fields with dry, sandy loam soils, and breeds in temporary pools **(Behler and King, 1979)**. The Fowler's toad prefers sandy areas near marshes, irrigation ditches and temporary pools. These species are the most likely amphibians to be present on the site. Species

that were not observed during these surveys, but would be expected based on site habitat are included in the species list in order to fully account for potential impacts to observed and expected amphibians and reptiles.

Several species of reptiles might potentially be found on the property, including the eastern garter snake, and eastern milk snake (**Wright, 1957**). All of these species are terrestrial species found in a variety of habitats. The garter snake is relatively tolerant of human activity, but prefers moist soils and would be most likely to be present near the recharge basin. The milk snake is found in soils of varying moisture content. These snakes are all colubrid snakes, which feed on whole animals such as worms, insects or small amphibians (**Behler and King, 1979**). The larger milk snake will also take small rodents and birds (**Behler and King, 1979**).

The only turtle species common to terrestrial habitats on Long Island (although listed in New York State as a species of special concern) is the eastern box turtle, which requires very little water (**Obst, undated**). The species is found in a variety of habitats, and prefers moist woodlands. The box turtle feeds primarily on slugs, earthworms, wild strawberries and mushrooms (**Behler and King, 1979**). The similar wood turtle utilizes both aquatic and terrestrial habitats, but is restricted to eastern Long Island (**Conant and Collins, 1991**).

Table 2-6 presents a list of reptile species that might occur on site given the existing habitats. This list is not intended to be all-inclusive but provides a detailed representation of what is or is likely to be found on site. In addition, further information regarding these species can be found in **Appendix H**.

Table 2-6
REPTILE AND AMPHIBIAN SPECIES

Amphibians	
common gray treefrog	*Hyla versicolor*
Fowler's toad	*Bufo woodhousei fowleri*
spring peeper	*Hyla crucifer*
common gray treefrog	*Hyla versicolor*
Fowler's toad	*oodhousei fowleri*
red-backed salamander	*Plethodon cinerus cinerus*
Eastern spadefoot toad	*Scaphiopus holbrooki*
Reptiles	
Eastern hognose snake	*Heterodon platyrhinos*
Eastern milk snake	*Lampropettis d. triangulum*
Eastern box turtle	*Terrepene carolina*
Eastern garter snake	*Thamnophis sirtalis*

[s] NYSDEC special concern species
* Species observed on site by NP&V staff

Rare and Endangered Species/Unique Habitat Potential

The N.Y. Natural Heritage Program (NYNHP) (ECL 9-1503) was contacted to determine if there is any record of rare plants, habitats or wildlife in the vicinity. The Natural Heritage Program has records of one endangered plant species and two threatened plant species on or within the

vicinity of the subject property. NYNHP has no known occurrences of state-listed animals or insects on or in the vicinity of the subject site (**Appendix I-1**). NYNHP has records for 1990 of flax-leaf whitetop (*Sericocarpus linifolius*), a NYS threatened species, occurring on the northwest portion of the project site. NYNHP has records of Sandplain wildflax (*Linum intercursum*), NYS threatened species, and field beadgrass (*Paspalum leave*), NYS endangered species, occurring within the vicinity of the project site.

During the site inspections conducted on September 15, 2017 and October 20, 2017 special care was taken to identify any rare threatened or endangered species on site. None of the species recorded by NYNHP were found onsite. However, a single population consisting of two individuals of sandplain gerardia (*Agalinis acuta*) was found on site. Sandplain gerardia is listed as endangered both within NYS and federally. The species is located approximately 5 feet from the western property boundary in an area of previous disturbance. The area where this species was encountered is beginning to succeed and the canopy is filling in. Sapling pitch pine and oak species are beginning to crowd the area and heath species are filling in the understory. As such the natural persistence of this species occurrence would not be expected to continue over time due to competition for resources as the habitat changes.

Of the wildlife species listed as being likely on the site, the red headed woodpecker and eastern spadefoot toad are identified as special concern species. Special concern species are native species which are not recognized as endangered or threatened, but for which there is documented concern about their welfare in New York State as a whole. Unlike threatened or endangered species, species of special concern receive no additional legal protection under Environmental Conservation Law Section 11- 0535. This category is intended to enhance public awareness of those species which deserve additional attention.

2.3.2 Impacts

<u>Vegetation</u>
The impacts to the ecological resources of a site are generally a direct result of clearing of natural vegetation, increase in human activity and associated wildlife stressors, and the resulting loss and fragmentation of wildlife habitat. The majority of the development area is currently wooded. A total of 11.21 acres of natural vegetation are proposed to be retained.

The changes in habitat quantities for both the overall property and the development area are listed in **Table 2-7**. As illustrated in **Table 2-7**, the conceptual development intends to ultimately provide approximately 21.17% of naturally vegetated area as well as 28.95% of landscaped area and 49.86% or 26.4 acres of impervious surfaces within the development area. As a result, the site will continue to provide some natural habitat for wildlife, though the removal of the existing woodland vegetation on the property is expected to result in a change in the characteristics of site habitat.

Table 2-7
HABITAT QUANTITIES
Existing and Proposed Conditions – Overall Site

Coverage Type	Existing Conditions		Proposed Project		Change
	Coverage (ac)	**Percent**	**Coverage** (ac)	**Percent**	(ac)
Pitch pine-oak forest	52.95	100%	11.21	21.17%	-41.74
Landscaped	0	0%	15.33	28.95%	+15.33
Impervious	0	0%	26.40	49.86%	+26.40
TOTAL	**52.95**	**100.00%**	**52.95**	**100.00%**	---

As previously stated, the NY Natural Heritage Program identified three records of known occurrences of rare or state-listed plants, significant natural communities or other significant habitats on or in the vicinity of the subject site. As described in **Section 2.2.1** above, these species are not anticipated to occur on the subject site. However, the state and federally listed endangered plant sandplain gerardia was identified on site and may potentially be impacted by the proposed project; however, as noted in **Section 2.2.1** above, the presence of species involves two individual plants and is not expected to persist as the existing habitat changes even under conditions without the proposed project. Under the proposed project the species would be conserved and managed within the vegetated area between the proposed roadway and the neighboring property. Sandplain gerardia is generally tolerant of moderate soil disturbances and can naturally be found in remnant grasslands. As such, it is anticipated that this species would continue to exist within the buffer area of the road right-of-way, if vegetation is properly managed. A management plan for this species has been included as **Appendix I-2.** Since the habitat is expected to succeed due to infill of the sapling pitch pine and oak species canopy and growth of heath species which are filling in the understory, the open disturbance associated with the installation of the road may improve conditions in support of the two (2) individual sandplain gerardia specimens. In summary, under existing conditions, the species may not be able to persist. Under proposed conditions, the species will be avoided and conditions may be more favorable. Consequently, no significant adverse impacts are expected to this species.

Wildlife

The habitat within the development area is pitch pine-oak forest. The property may act as a refuge for rare native flora or fauna and does contain a small population of local birds and mammals, such as chipmunks and eastern cottontails. The proposed project will favor those wildlife species that prefer edge and suburban habitats and those that are tolerant of human activity. Most of the species expected on the property are at least somewhat tolerant of human activity, but others will be impacted by the proposed clearing operation and increase in human activity. It is also expected that particular species of wildlife (particularly avian species) will migrate to undisturbed areas adjacent or near the site as a result of development.

A total of 11.21 acres of natural vegetation are proposed to remain within the development area. Although the proposed 15.33 acres of landscaped vegetation within the development provides less habitat than the existing natural area, the landscaped areas are expected to provide some habitat for some species to remain that are tolerant and/or dependent on human activity and are adapted to surviving in multiple habitat types.

In the short term, lands adjacent to the property will experience an increase in the abundance of some wildlife populations due to displacement of individuals by the construction phase of the proposed project. Mobile species and particularly large mammals such as fox and deer would be expected to find suitable habitat south of the site where larger areas of natural open space currently remain. Ultimately, competition with both conspecifics and other species already utilizing the resources of the surrounding lands would be expected to result in a net decrease in population size for most species.

No further rare or endangered wildlife species are expected on the site given the habitats present except as described in the appropriate subsections above. The red headed woodpecker and eastern spadefoot toad are the only species potentially expected on site which are listed as special concern species. Although there is documented concern about their welfare in New York State, these species receive no additional legal protection under ECL Section 11-0535. This category is presented primarily to enhance public awareness of these species that bear additional attention **(NYSDEC, Endangered Species Unit)**.

2.3.3 Mitigation

- Native plant species that provide food and shelter to wildlife will be utilized in the landscaped areas.
- The loss of pitch pine-oak forest habitat on the property will be partially mitigated by the proposed preservation of 11.21 acres of pitch pine-oak forest within the development area.
- Disturbance will be minimized to the maximum extent practicable, including delineating tree-clearing limits at the site prior to construction to avoid inadvertent clearing.
- No known invasive plant species will be utilized, including those species specifically listed in Nassau County Local Law 22-2009 and as listed as invasive, nonnative plants specifically not recommended in Town Code Chapter 85 Attachment 7:2.
- The two individual specimens of sandplain gerardia will be avoided on the site, and as habitat conditions will change as a result of the proposed project, the conditions are expected to improve for this species, as compared with natural succession which will occur, absent the proposed project. It is recommended that the habitat in proximity to these individual specimens be managed to support the species in coordination with the NYSDEC, Endangered Species Unit. A management plan has been developed for the Sandplain Gerardia onsite.

SECTION 3.0

HUMAN ENVIRONMENTAL RESOURCES

3.0 HUMAN ENVIRONMENTAL RESOURCES

3.1 Land Use, Zoning and Plans

3.1.1 Existing Conditions

Land Use

The subject property is presently vacant and in a natural wooded condition. Existing land uses and the general development pattern in the surrounding area is identified based on aerial photographs, geographic land use data, and direct observations performed during field visits. The current land use pattern in the area surrounding the subject property is depicted on the (existing) Land Use Map provided in **Figure 3-1**. The scale and spatial arrangement of existing buildings, structures and the local street network are shown on the aerial photograph provided in **Figure 1-2**. A summary of existing land uses on and near the subject site and the general development pattern in the area is as follows:

Subject Site: Vacant/undeveloped pitch pine-oak forest;

To the North: Woodside Avenue (CR 99) right-of-way (ROW) and a developed light industrial subdivision; to the northeast is Atlantic Point Apartments; to the northwest is a densely developed single-family residential neighborhood;

To the South: Sunrise Highway, including the north and south service roads; a stormwater recharge basin and woodlands to the south of the highway; parkland to the southeast, on the south side of the highway; and a restaurant, BJ's Wholesale Club and Eastern Suffolk BOCES to the southwest, on the south side of the highway;

To the East: A stormwater recharge basin and sewer district pump station; a densely developed single-family residential neighborhood known as Horizon Village; and farther to the east, a vacant tract of woodland and the Town of Brookhaven Landfill; and

To the West: Autobody and auto repair shops; a small masonry business; a vacant commercial building; a small warehouse; a Suffolk County Water Authority wellfield, pump station and water storage tower; Station Road ROW; a County stormwater recharge basin; Bellport Outlet Stores, Home Depot, various other occupied or vacant retail stores and businesses; and a densely developed single-family residential neighborhood.

Zoning

The subject 52.95-acre property is currently zoned L-Industrial-1 (L-1) which permits a wide variety of industrial, commercial, service, office and institutional land uses, including but not limited to manufacturing, warehousing, lumber yards, research and development facilities, printing plants, stone and mason supply businesses, commercial laundries, motor vehicle rentals, banks, offices, day care facilities, health clubs, veterinary services, and other commercial uses. Other typically large and/or intensive types of land uses that are permitted in the L-1 zone by special permit include: airports, anaerobic digesters, electric generating facilities, parking fields, bus storage yards, heavy construction, vehicle dealerships, trucking terminals, kennels, colleges and universities, bars and nightclubs, and adult uses. Based on the above uses, the current zoning district permits a variety of often large and/or intensive land uses.

Land adjacent to the subject property is zoned as follows:

To the North: L-Industrial 1 (L-1) on the north side of Woodside Avenue;
To the South: A-Residence-1 (A-1) (single-family homes on minimum 40,000 SF lots) to the south of the Sunrise Highway corridor;
To the East: B-Residence (B) (single-family homes on minimum 15,000 SF lots);
To the West: B-Residence (B) on the northwest and L-Industrial-1 (L-1) and J-Business-2 (J-2) (General Business) on the southwest side of Station Road.

Portions of the above described zones that are adjacent to or on the opposite side of a street or highway from the project site are already developed with the exception of one isolated 2.2-acre woodlot at the northwest corner of the intersection of Farber Drive and Station Road which is located west of the project site in the L-1 zoning district; a long narrow Town of Brookhaven stormwater recharge basin which parallels the south side of a row of single-family homes located along the south side of Harrison Avenue, west of the site; and land on the south side of Sunrise Highway which is zoned A-1, but due to the significant width of the Sunrise Highway ROW, is nearly 500 feet away. **Figure 3-2** shows the existing zoning pattern in the area.

The minimum lot area within the L-1 zone is 40,000 SF but minimum lot sizes required in this zone vary considerably (between 40,000 SF to as much as 60 acres) depending on the type of land use proposed. For example, a bank with drive-thru service requires a minimum of 65,000 SF (1.49 acres), a principal use with a restaurant or a bus storage facility each require a minimum of 3 acres, a non-motorized recreational facility requires at least 5 acres, an electric generating facility requires a minimum of 20 acres, and an anaerobic digester must be located on at least 60 acres.

As with the minimum lot area requirements for permitted L-1 uses, the required dimensional zoning standards are variable depending on the actual size of the lot to be developed, the type of land use proposed, and whether the proposed L-1 use is in a Town-designated hydrogeologic sensitive zone or not. (The subject property is outside of this zone.)[1] Dimensional zoning requirements vary as indicated in **Table 3-1**:

Land Use Plans

1996 Draft Comprehensive Land Use Plan

The 1996 Draft Town Comprehensive Land Use Plan sets several general goals, identifies environmental resources, discusses existing land uses, provides broad policies and recommendations, and includes a land use map depicting recommended future land uses and development patterns. Planning recommendations from the draft plan that are generally applicable to the proposed project and/or site include the following:

- Provide affordable housing for all segments of the population;
- Support and promote senior citizen housing;

[1] The Town defines "hydrogeologic sensitive zones" as areas within the Zone III hydrogeologic area as described by the Nassau - Suffolk Areawide Waste Treatment Management 208 Plan and the hydrogeologic sensitive area known as the "South Setauket Woods."

Table 3-1
L-INDUSTRIAL-1 DIMENSIONAL ZONING STANDARDS

Dimensional Standard	Standard Requirement	Alternative Standard(s)
Minimum Lot Area	40,000 SF	65,000 SF, 3 acres, 5 acres, 20 acres or 60 acres for specified uses; 120,000 SF in a hydrogeologic sensitive zone(1)
Maximum Floor Area Ratio (FAR)	35%	30% in hydrogeologic a sensitive zone(1); 25% for electric generating facilities
Minimum Road Frontage	100 feet	150 feet or 400 feet for specified uses; 200 feet in a hydrogeologic sensitive zone(1)
Minimum Front Yard	50 feet	100 feet for lots over 5 acres
Minimum Side Yard	10 feet; 30 feet total	25 feet, 50 feet or 75 feet for specific uses
Minimum Rear Yard	50 feet	100 feet for lots over 5 acres
Maximum Building Height	50 feet and 3 stories	N/A
Minimum Buffer	100 feet	75 feet for an anaerobic digester

1. Subject site is not in any Town designated hydrogeologic sensitive zones.

- Promote the creation of a senior citizen housing stock that is diverse, affordable and flexible;
- Locate multifamily housing along major roadways and near activity centers and provide a choice of housing types for an aging population and affordable housing for the young;
- Consider whether current zoning classifications are appropriate;
- Consider rezoning large underutilized industrially-zoned parcels, partly-naturally-vegetated parcels with limited highway access, and areas outside of sensitive hydrogeologic zones as PDDs;
- Consider eliminating inappropriate industrially-zoned surplus properties including those that are located too far from major roadways and other transportation access and are unlikely to be developed;
- Ensure that work places, shopping, and activity centers are located in close proximity to residences, and that a sense-of-place is created; and
- Support economic growth and the creation of high quality industrial jobs.

The project site is depicted on the Plan's future land use map as being targeted for industrial uses.

2014 Greater Bellport Land Use Plan

The subject property is located within the boundaries of the study area for the 2014 Greater Bellport Land Use Plan. The Greater Bellport Land Use Plan summarizes and builds off of numerous previous public outreach efforts, studies and plans that have been prepared over the past 50 years for unincorporated sections of Bellport and North Bellport in the Town of Brookhaven. These include:

- North Bellport Taxpayers Association Report (Edwin S. Voorhis & Son, Inc., 1964);
- 1996 Draft Town Comprehensive Land Use Plan (Lee Koppelman & the Town of Brookhaven, 1996);
- Comprehensive Plan for the Revitalization of North Bellport (Enterprise Foundation, 1990);
- Bellport Station – First Phase of "Learning by Doing" – A Grassroots Community-Building Initiative (New Directions Community-based Research Institute, 2002);
- South Country School District Hamlet Study (New Directions Community-based Research Institute, 2003);
- North Bellport Retail Study (Saratoga Associates & Sustainable Long Island, 2008);
- Greater Bellport Sustainable Community Plan (Sustainable Long Island, 2009); and
- Greater Bellport Community Niche Market and Branding Plan (Nelson, Pope & Voorhis LLC, 2011).

The Plan places special focus on what it refers to as the Bellport and Hagerman Hamlet centers and provides mostly general recommendations and broad guiding principles for the larger Bellport area including North Bellport and the subject site. Although the study area encompassed a larger area, the recommendations with respect to land use and zoning from this plan are concentrated south of Sunrise Highway, with the majority focused along Montauk Highway. The plan does not provide specific recommendations for the subject property other than classifying it as a site for future industrial use as it is currently zoned and providing a number of general smart growth policies to guide future development in the area. General recommendations for the Greater Bellport area that are applicable to the subject project include:

- Developing sites that are located along and have easy access to Sunrise Highway with land uses such as industry that can capitalize on this location;
- Developing more senior housing for the aging demographic on the outskirts of Bellport's commercial centers;
- Making areas pedestrian friendly and promote the use of transit where possible;
- Permitting of retail uses that provide basic everyday goods and limit some convenience type uses.

The project site is depicted on the plan's future land use map as targeted for industrial use consistent with the Draft 1996 Comprehensive Land Use Plan.

Comprehensive Housing Market Analysis for the Hamlets of Bellport & East Patchogue

A Comprehensive Housing Market Analysis for the Hamlets of Bellport & East Patchogue was prepared in March of 2017[2] which evaluated the market dynamics of the housing market and determined the need for and marketability of new rental and for-sale housing options in the Bellport and East Patchogue communities utilizing the same Study Area used for the 2014 Land Use Plan. Though the focus of the housing study was to determine the market for multifamily units at two of the opportunity sites identified in the 2014 Greater Bellport Land Use Plan, the analysis indicated demand for 1,260 new housing units within the entire Study Area projected through the year 2035. The study recommended that new dwelling units be constructed within walking distance of the Bellport Train Station consistent with the recommendations of the 2014 Greater Bellport Land Use Plan.

[2] The report was prepared by Nelson, Pope & Voorhis & Urbanomics on behalf of the Town of Brookhaven & the New York State Department of State with state funds provided through the Brownfield Opportunity Areas Program.

2009 Sunrise Highway Corridor Study: Islip Town and Brookhaven Town, Suffolk County, NY

The Sunrise Highway Corridor Study was prepared by Suffolk County in response to increased concerns related to traffic congestion, safety concerns, and land use conflicts associated with increased development along a 12.7-mile segment of Sunrise Highway in Islip and Brookhaven. The Study identifies policies and practices that will help to manage growth within the Sunrise Highway corridor in a manner that will improve the quality of development, provide a balance of land uses, reduce commercial sprawl, and minimize the impact on traffic. The project site is located within the Station Road Node identified in the Study. General recommendations from the Sunrise Highway Corridor Study that are applicable to the subject project include the following:

- Reinforce nodes by encouraging infill development and increasing pedestrian connections between the nodes and residential neighborhoods;
- Encourage mixed uses that blend retail, resident and office uses into coherent planned developments within the nodes;
- Holistically design development sites to avoid fragmentation and lack of connectivity;
- Link developments to existing sewer districts; and
- Promote light industrial development.

3.1.2 Potential Impacts

<u>Land Use</u>
The proposed project will change the land use classification of the property from its current vacant wooded condition which is zoned for industrial use to the proposed mixed-use PDD zone containing: an NH-H zone that would contain a 130-bed assisted living facility combined with a total of 106 PRC units in the north part of the site; 160 MF apartments in the central part of the site; and, a mix of commercial and retail uses in the south part of the site. It appears that one of the reasons the site is zoned for industry is its convenient access off of Sunrise Highway (SR 27), Station Road and Woodside Avenue (CR 99) which would allow the site to accommodate truck and vehicle trips to and from the site. However, in consideration of the existing mixed land use pattern of the area, including commercial uses to the southwest, light industry (to the north) and single-family residential neighborhoods to the east and west, the proposed mixed-use PDD is expected to better conform to the land use pattern of the area than the existing industrial zoning and the proposed project will still receive the benefit of having convenient access to the local road network described above. From a land use standpoint, the proposed project is expected to provide a better transition to the adjacent single-family neighborhoods to the east and west than one or more of the more intensive land uses that could be permitted on the 52.95-acre site under the L-1 district use regulations. The density of the development would be consistent with its location between two major highways (SR 27 and CR 99) and Station Road, and provide easy access to the assisted living facility. Residences and commercial uses will be important for support of this development scenario. Finally, it is questionable whether industry is a suitable use at the site in consideration of the presence of the existing adjacent SCWA wellfield along Station Road.

The proposed project has also been designed to place the MF residential, PRC and assisted living components of the **Conceptual Site Plan** on the north side of the property adjacent to the residential neighborhoods to the east and west, thereby providing a reasonable and potentially less intrusive land use transition than the current industrial zoning and potential use under that zone. The proposed mixed-use PDD also places the mini-storage warehouse and retail uses on the southeast side of the 52.95-acre property where there is a wider buffer between the residential neighborhood to the east, and places the restaurant and market on the southwest side of the property closer to Station Road, opposite the Bellport Outlet Center and other commercial uses, while closer to Sunrise Highway with a secondary access/egress from the highway's North Service Road. In regard to any possible conflicts between the existing light industrial development to the north and the proposed PRC and assisted living facility that will be located to its south, the uses will be separated by the 150± foot wide Woodside Avenue right-of-way, a 50-foot vegetated buffer along the south side of Woodside Avenue on the subject property, and an existing pitch pine (evergreen) buffer along the north side of the highway within the existing industrial site to the north.

Despite the existing industrial zoning of the property and past planning recommendations that call for industrial land uses at the site, this large tract of vacant industrially zoned land has remained undeveloped, which is likely due to a trend where industries locate or relocate to other regions of the Town or region where economic development and/or empire zones are present and other industries are located, such as Yaphank. Potential conflicts of industrial uses with the adjacent SCWA wellfield may also have created a disincentive to developing the site for industrial purposes. The Sills Road/Station Road area of Yaphank provides economic incentives and improved access and has attracted a more stable industrial complex.

Although the open space character of the existing woodland on the subject site would be modified, the project would still retain 11.21 acres of pitch pine-oak woodlands and provide an additional 15.33 acres of landscaping to help screen and/or mitigate visual/community character impacts and enhance the visual quality of the development. The proposed design is intended to integrate the development into the surrounding community, thus providing a better transition to the residential neighborhoods to the east and west, through provision of appropriate land use transitions along with screening and buffering.

The target market for the type of residential units proposed will be seniors/retirees who wish to remain near their families in downsized living quarters, elderly individuals who need assistance with day-to-day activities, young singles, and couples, as well as some small families who would seek to occupy the proposed two-bedroom MF units. Ten (10) percent of the proposed MF and PRC dwelling units will be priced to meet the Town's criteria for affordability in order to comply with applicable regulations and address community needs for diversified local housing stock. The additional residents and commercial activity should also help to support businesses in the area by establishing additional consumers in the area thus providing economic benefit to local merchants, service-oriented businesses and general consumer activities. The proposed project will not only provide new and necessary housing and services for an aging population and persons of modest means, but also will also generate temporary construction jobs, as well as permanent full- and part-time site and building maintenance jobs and employment opportunities

at the proposed retail, restaurant, warehouse, and assisted living uses (see also **Section 3.2** and **Appendix B**).

Zoning

The proposed mixed-use PDD complies with the land use requirements for PDDs (Article XXVI) which allows permitted and special exception uses found suitable by the Town in the MF-1, PRC, J Business 2, and L Industrial 1 districts, subject to the density/intensity requirements set forth in § 85-741, "Planned Development District," "Density and intensity."

The mixed-use PDD is also consistent with required dimensional zoning standards, including minimum lot area; minimum lot width; front, side and rear yard setbacks; maximum building height; maximum MF and PRC density, including the requisite acquisition and redemption of PBCs; and maximum floor area ratio. However, a variance may be required from § 85-843 B. (2) (c) of the Town Code which requires a 75-foot perimeter buffer adjacent to the residential zone to the east of the proposed site of the 33,600 SF retail building, where none is provided. Even though the commercial site does not meet this requirement, it is noted that the proposed use is adjacent to a portion of an unopened stretch of Walker Avenue which is very unlikely to ever be opened and an existing stormwater recharge basin which provides enough separation between the future commercial use and any existing residence to far exceed the minimum 75-foot perimeter buffer requirement. The L-1 site would also not provide the required perimeter buffer adjacent to the proposed MF development to its north but the large wooded area on the south side of the proposed MF lot provides more than ample space to meet the requirement even though it is on the MF portion of the PDD. The PDD component of the development is also consistent with the requirement set forth in Article XXVI, § 85-743, "Affordable housing," which requires that ten percent (10%) of the proposed residential units be set aside as workforce or affordable housing.

The proposed Assisted Living Facility also complies with the land usage requirements of the NH-H as set forth under Town Code § 85-341 which allows nursing homes and hospitals, although it does not fully comply with the maximum building height requirement. The development has been designed as an overall integrated planned development. Recognizing that NH-H is not on the list of allowable uses within a PDD, a new NH-H zone is requested. The NH-H use, along with the mix of uses proposed in the PDD and their arrangement throughout the site, are compatible and fully appropriate for this location. The synergy with the PRC and the compatibility of the land uses, in conjunction with the limited demand for additional industrial development in the area, warrant the consideration of the rezoning of the property and relaxation of the NH-H building height standard. **Table 3-2** provides a summary of the PDD and NH-H zones' dimensional requirements and compares these with proposed condition as shown in the **Conceptual Site Plan** attached to the back cover of this DEIS.

Table 3-2
CONFORMANCE TO DIMENSIONAL PDD/NH-H REQUIREMENTS

Dimension	Requirement/Standard	Proposed Project[1]
Planned Development District (PDD)		
Minimum Lot Area (acres)	3	48.46
Minimum lot width (feet)	100	472
Maximum Floor Area Ratio (%)	60	24.54
Minimum Front Yard Depth (feet)	25	50
Minimum Side Yard Depth (feet)	50	50
Minimum Rear Yard Depth (feet)	50	50
Maximum Building Height (feet/stories)	50/3.5	50/3.5
Minimum Number of Affordable DUs (%)	10% (16 MF,11 PRC)	10% (16 MF,11 PRC)
Minimum Number of Parking Spaces	1,018	1,104
Health Facility District (NH-H)		
Minimum Lot Area (acres)	3	4.49
Minimum Road Frontage (feet)	200	426
Maximum Building Area (Footprint) (%)	20	20
Front Yard Setback (feet)	100	140
Side Yard Setback (feet)	50	63.37/129.58
Rear Yard Setback (feet)	75	116.97
Maximum Building Height (feet/stories)	35/2.5	50/3.5[2]
Minimum Parking	65	75

1) Based on **Conceptual Site Plan**
2) Variance or Planning Board waiver required

Development Density and PBCs: MF/PRC Component

As noted above, the proposed 16-acre MFparcel would be developed with 160 apartments, at a density of 10 units/acre. As per Town Zoning Code §85-280 A., for a multi-family residential project within the Primary Zone (as acknowledged by the Town), this is the maximum density allowed for this acreage. The **Primary Zone Analysis** map provided at the end of the **Concept, Rationale and Quantitiative Analysis Supplement** (**Appendix J**) indicates a 1,320-foot radius surrounding the project site. Per Town Code §85-273, a site must be within 1,320 feet of a major arterial roadway (at least 5,000 average daily vehicles trips per day) to be considered within a primary zone. According to the New York State Department of Transportation Traffic Data Viewer, the project site is located within 1,320 feet of numerous major arterial roadways including Station Road (AADT of 12,285 vehicles), Woodside Avenue (AADT of 5,424 vehicles) and Sunrise Highway (AADT of 60,556 vehicles). Additionally, the project site can be classified within a primary zone because it is within 1,320 feet of the Bellport Outlets commercial node. The project site is served by segments of sidewalks along Station Road and Suffolk County Bus Routes 68 and 7B along Station Road, Woodside Avenue and Village Drive. The Applicant proposes to provide interior site sidewalks and additional sidewalk from the site access, off of Station Road, south along the east side of Station Road, to the south side of the traffic signalized intersection of Station Road and Farber Drive. This would provide a connection to an existing sidewalk on the east side of the road. There is a pedestrian crossing button at this

location and the remnants of a crosswalk over Station Road to the south side of Farber Drive (the road to Bellport Outlet). There is a pedestrian crossing button on this side of the street as well, and a sidewalk that leads directly to the Bellport Outlet, thereby providing the necessary pedestrian facilities to access the Outlet and fulfill the Town's primary zone requirements.

Redemption of Pine Barrens credits is required for the proposed multi-family and PRC uses. The proposed development includes a 16 acre MF parcel to be developed with 160 apartments. Per §85-280 C. (1) (a), the Base Density of this site, now industrially-zoned, is 48 units. Per Town Code Article XIII (§85-167B), the applicant shall receive a density bonus over the base density of the site (not the proposed density) of 10%. Therefore, the base density of the project site is 53 units, due to an additional 5 units from the affordable and workforce housing density bonus. Town Zoning Code Article XV (§85-330) requires that, for the MF units, at least 10% are to be designated as affordable or workforce housing units. The proposed PDD will comply with this requirement, by setting aside 10% (or 16 units) as affordable units. Based on Town Zoning Code §85-280 D.(1)(d) affordable units are not subject to Pine Barrens credit redemption. As a result, the MF units represent a density increase of 91 units. The density increase of 91 units was calculated by taking the proposed MF density of 160 units minus the base density (53 units), minus the number of affordable/workforce units proposed (16 units), since these components are not subject to the credit calculation. As a result, under §85-280 D. (1) (a), the number of PBCs to be redeemed is calculated as 20% of the density increase (91 units), or 18.2 PBCs.

The computation of PBCs for the Multifamily Component is summarized as follows:

Table 3-3
PBC CALCULATION FOR
MULTIFAMILY DEVELOPMENT COMPONENT

Parameter	Value	Unit
Size of Site	16.00	acres
Zoning Base Density	3	units/acre
Base Density (units)	48	units
Affordable Density Bonus factor of 10%	5	units
Total Base Density	53	units
MF Units Proposed	160	units
MF Base Density	53	units
MF Affordable Units factor of 10%	16	units
MF Density Increase Over Base Density	91	units
MF Pine Barrens Credit Factor of 20%	18.2	PBCs

The PRC Component of the project also requires redemption of Pine Barrens credits, in addition to the MF portion described above. The 18.20-acre PRC portion of the site is proposed to be developed with 106 PRC units. The maximum permitted density in a Primary Zone is 8 units per acre per §85-298 A, which results in a total permitted density of 145 units. The base density of

the PRC as per §85-298 D(1)(a) is 55 units. According to Town Zoning Code §85-298 E. (1)(e), no Pine Barrens Credits redemption is required for affordable or workforce housing units. The project as proposed includes 10 affordable PRC units. As a result, a density increase of 41 units is proposed for the PRC component, which was calculated by taking the proposed PRC density of 106 units minus the base density (55 units), and minus the affordable/workforce units proposed (10 units), since these components are not subject to PBC redemption. Per §85-298 E. (1)(a), the PBC redemption is calculated as 15% of the total number of units above base density (41 units), for a total of 6.15 PBCs.

Table 3-4
PBC CALCULATION FOR
PRC DEVELOPMENT COMPONENT

Parameter	Value	Unit
Size of Site	18.2	acres
Zoning Base Density	3	units/acre
Base Density (units)	55	units
PRC Units Proposed	106	units
PRC Base Density	55	units
PRC Affordable Units	10	units
PRC Density Increase Over Base Density	41	units
PRC Pine Barrens Credit Factor of 15%	6.15	PBCs

Total PBCs
The total PBCs required for the proposed development density is therefore 24.35 credits. The L-1, and J-2 zonings are all equal in base density as compared with the existing L-1 zoning of the site. The NH-H district requires a Change of Zone, but is not subject to credit redemption. However, each change in zoning (other than the MF and PRC which are subject to PBCs) is subject to the Land Use Intensification Mitigation Fee pursuant to §85-82 of the Zoning Code which is discussed below.

Density and Macchia Fund Contributions: NH-H and Business Components

Under §85-741 B., the non-residential PDD (i.e., the industrial and the commercial/retail portions) and the NH-H components of the proposed project are subject to land use intensification requirements, calculated as follows:

> …the land use intensification percentage of the less restrictive zone in which the proposed use is located (the use proposed by the PDD master plan as listed and permitted in §85-740) minus the land use intensification percentage of the more restrictive zone (the underlying zoning district prior to the time of Town Board PDD approval).

The schedule of use intensities is outlined in §85-82 C., which indicates that the existing L-1 zoning has a use intensity of 70%. NH-H has the same use intensity (70%), and therefore, is not

subject to an intensification fee. The other requested zoning district, J Business 2, has a use intensity of 85%. The intensification fee, based on §85-82 D., is as follows: "The land use intensification mitigation fee shall be calculated as follows: $750 per one-percent increase in land use intensification per acre or part thereof, in conformance with the percentages above." As a result, the J-Business-2 will result in a fee of $125,887.50.

Land Use Plans

1996 Draft Comprehensive Land Use Plan

The proposed project is consistent with previous planning recommendations that promote the establishment of diverse, affordable, and suitably located housing for senior citizens but would be inconsistent with the future land use recommendation in the 1996 Comprehensive Land Use Plan which called for the establishment of an industrial use on the subject property and retaining industrially zoned land in the Town for intensive industrial development. The Draft 1996 Comprehensive Land Use Plan, however, also recognized a downward trend in demand for industrial space noting that by 1987, the region had lost 24 percent of its manufacturing jobs and the vacancy rate for industrial space had doubled in Suffolk County between 1988 and 1996. This long-term trend toward declining demand for industrial space on eastern Long Island and in the region continues today, and along with the prevalence of vacant industrial land and vacant or abandoned industrial buildings, suggests that the current supply of industrially-zoned land in the Town may be in excess of what is in demand and can be practicably utilized at this time.

Conversely, demand for residential and commercial land uses is still strong and development sites are always being sought to fulfill these residential and commercial land use demands. Moreover, rezoning and developing the site, as proposed, is also consistent with the 1996 Comprehensive Land Use Plan's recommendation for rezoning large underutilized industrially-zoned parcels for PDDs. Finally, it is noted that although PDD and NH-H zoning is being proposed, the Applicant is seeking to construct a two-story mini-storage warehouse which is considered an L-1 type use that will help to increase the Town's stock of L-1 uses. A mini-storage warehouse use is a low intensity industrial use that is more appropriate for the subject site which is adjacent to residential development to its east, northeast and west and a SCWA wellfield that is adjacent to its west than other more intense industrial uses allowed under L-1 zoning. In addition, although a health club is not a typical industrial use, it is a permitted use in the L-1 zone.

The 1996 Comprehensive Land Use Plan is somewhat dated but nevertheless provides guiding principles for land use that remain applicable today. **Section 3.1.1** of this DEIS ("Land Use Plans") listed nine (9) recommendations in the 1996 draft plan that are applicable to the proposed action and are listed again below:

- provide affordable housing for all segments of the population;
- support and promote senior citizen housing;
- promote the creation of a senior citizen housing stock that is diverse, affordable and flexible;
- locate multifamily housing along major roadways and near activity centers and provide a choice of housing types for an aging population and affordable housing for the young;
- consider whether current zoning classifications are appropriate;

- consider rezoning large underutilized industrially-zoned parcels, partly-naturally-vegetated parcels with limited highway access, and areas outside of sensitive hydrogeologic zones as PDDs;
- consider eliminating inappropriate industrially-zoned surplus properties including those that are located too far from major roadways and other transportation access and are unlikely to be developed;
- Ensure that work places, shopping, and activity centers are located in close proximity to residences, and that a sense-of-place is created; and
- support economic growth and the creation of high quality industrial jobs.

It should also be noted that the Town, in more recent years, has recognized the need to update the Draft 1996 Comprehensive Land Use Plan by conducting various studies and preparing new plans that address more contemporary land use issues and residential needs in the Bellport and North Bellport communities. The proposed PRC and MF residential uses and existing living facilities would be more compatible with adjacent residential land uses that are present to the east and west of the property than one very large or several intensive industrial land uses that would be permitted in the L-1 zone. Moreover, the increased residential population from the project and new commercial uses with convenient access along Station Road between two major highways (SR-27 and CR 99) and said business uses being opposite the Bellport Outlet Center and Home Depot, is expected to increase the local customer base and might create a greater commercial draw to the area and help to stimulate more commercial activity.

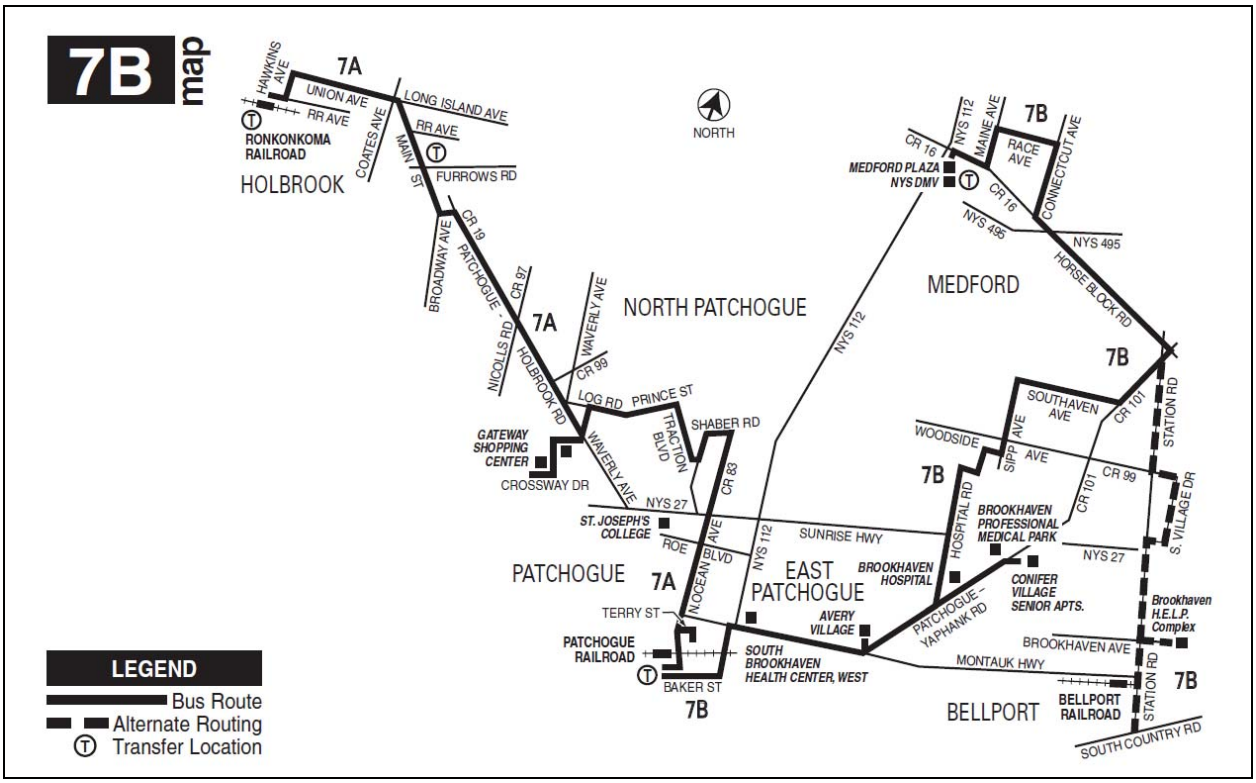
2014 Greater Bellport Land Use Plan

While the more recent 2014 Greater Bellport Land Use Plan also shows the future land use as industry on the subject site and includes recommendations for creating industrial jobs, its recommendation for providing more senior housing for the aging demographic on the outskirts of Bellport's commercial centers will be addressed and some industrial development will be retained, while proposed retail uses will create employment opportunities. Moreover, the proposed new residential population to inhabit the area, estimated to be 594 new residents, will provide an internal consumer base for restaurant, retail and commercial uses provided on the site. As noted, the proposed project will provide new construction and permanent full- and part-time jobs in the area thus increasing employment as well as providing support for retail and restaurant uses proposed on the subject site.

Comprehensive Housing Market Analysis for the Hamlets of Bellport & East Patchogue

This 2017 analysis recommended that new dwelling units be constructed within walking distance (i.e., one-quarter mile) of the Bellport Train Station consistent with the recommendations of the 2014 Greater Bellport Land Use Plan; however, there is limited available land within a quarter-mile radius of the train station, and therefore, other sites within the larger Study Area such as the subject property, can also meet some of the documented demand for new multifamily housing. Even though the subject property is not located within walkable distance of the Bellport Train Station, the project site is within a walkable distance of Suffolk County Transit Bus Route 7B which stops at the adjacent intersection of Woodside Avenue and South Village Drive, adjacent to the subject property. This bus route connects to the Bellport Train Station, downtown Bellport, Eagle Estates, Brookhaven Memorial Hospital, South Brookhaven Health Center, the Village of Patchogue, the Patchogue Train Station, East Patchogue, Medford and provides

additional stops to connect to bus routes 7A, S54, S61 and S63. The project would therefore have convenient access to various local transit services, while helping to fulfill local housing demands and providing other benefits. Suffolk County Transit's 7A and 7B bus routes are shown on the diagram below:



In addition, the 2017 analysis found that most of demand for housing within the Study Area would be from the 55 and over population. The proposed project which includes 106 PRC (55 and older) units, a 130-bed assisted living facility, and 160 rental apartments in a mixed-use development will assist in meeting some of the demand for rental housing within the area. The Study also concluded that, given the demand for housing from both seniors and young adults and singles, these units should be primarily one-to-two bedrooms. The proposed project fulfills this need by offering a mix of studio, one-bedroom and two-bedroom units.

2009 Sunrise Highway Corridor Study: Islip Town and Brookhaven Town, Suffolk County, NY

The 2009 Sunrise Highway Corridor Study does not provide specific recommendations for the subject property; however, the project site is located within the Station Road Node and a variety of recommendations are provided for the nodes within the Study. The Station Road Node is identified as an opportunity for companies developing cleaner and "greener" technology due to its proximity to the Town's recycling facility, landfill, and compost facility. The Study recommends mixed use for this Node but notes that residential uses may not be appropriate in the area north of Sunrise Highway due to conflicts with existing industrial uses and noise from the

arterial highway. The Study includes a focus on holistically designed mixed-use developments to ensure a variety of land uses and connections between uses. These goals are consistent with the intent of the proposed PDD. The Study recommends concentrating development, particularly commercial development, around the nodes identified in the study area and retaining or encouraging light industrial uses as they provide jobs and typically do not contribute much traffic. The proposed mini-storage facility is a light industrial use that is consistent with the goals of the Study but demand for industrially zoned land is somewhat limited in the area. Moreover, new industrial development at the site in accordance with existing zoning may create more noise or potentially create hazardous conditions that would be incompatible with adjacent and nearby residential land uses and the nearby SCWA water supply. The proposed project is consistent with the County's 2009 Sunrise Highway Corridor Study with regard to it supporting infill development, increasing the connectivity of various land uses and providing easy vehicle and pedestrian connectivity, and its use of a local STP for sewage treatment and disposal.

In conclusion, the intent of the requested rezoning is to provide a productive mixed-use development that will be more viable and sustainable than 53 acres of perpetually vacant industrial zoned land or future industrial uses which appear unlikely or may conflict with existing residential neighborhoods and the local drinking water supply. The proposed development will be integrated into the pattern of development in the area and with required setbacks, buffers, landscaping and properly controlled outdoor lighting as required under § 85-862, "Exterior lighting standards" of the Town Code, will be transitional and compatible with nearby single-family residential development and other land uses. The project will also help in meeting demand for assisted living and senior housing for the aging "Baby-Boom" demographic and apartments for young single adults. Ten percent of the residential units will be marketed as "affordable" rental units in accordance with Town specifications to further diversify the local housing stock and provide residential housing choices for persons and small families of various means. Access from three different roadways including a major State arterial (Sunrise Highway) and a major County highway (Woodside Avenue/CR 99) that have considerable excess capacity will be provided for ingress/egress at the site.

It is noted that the analysis recommended that units be constructed within walking distance of the Bellport Train Station consistent with the recommendations of the 2014 Greater Bellport Land Use Plan; however, there are limited properties within ¼ radius of the train station, and therefore, other sites within the Study Area such as the subject property, can also meet some of the documented demand for new multifamily housing. In addition, based upon the analysis, it was expected that the majority of demand for housing within the Study Area would be from the 55 and over population.

The proposed project, which includes 106, 55 and over PRC units and 160 rental apartments in a mixed use development, will assist in meeting some of the demand for rental housing within the area.

Based on the foregoing and in consideration of the proposed balanced mix of land uses including diverse housing options, the existing pattern of land use in the area, the local street and highway network that serve the site, favorable project design and identified impact prevention and mitigation approaches, and the proposed purchase of PBCs, potential land use and zoning

impacts appear to be minimized to the maximum extent practicable such that significant adverse environmental impacts with respect to land use, zoning and land use plans are not anticipated.

3.1.3 Mitigation

- The proposed project will include compatible and complementary land uses as a transition between two residential neighborhoods and bolster the draw of local retail and other businesses in the area.
- The conceptual development will be separated from existing light industrial uses to the north due to the Woodside Avenue ROW and existing and proposed setbacks and buffers on both sides of the highway.
- The zoning and **Conceptual Site Plan** as proposed will provide a mix of needed land uses such as assisted living facilities, retirement housing, a mix of rental housing (studio, one-bedroom and two-bedroom units) for diverse needs as well as affordable housing which meets certain Town housing objectives and the requirements of the Town Code.
- Although only limited industrial jobs will be created by this project, the Proposed Action will provide new employment opportunities including a variety of temporary construction jobs, future site and building maintenance work, full and part-time retail, market, restaurant, retail, warehouse and assisted living facility employment opportunities.
- The project will preclude the establishment of large or numerous small industrial uses but is otherwise generally consistent with the spirit and intent, as well as key elements of, the Town Comprehensive Plan Update, which recognizes the importance of providing a mix of housing types in the Town, particularly for seniors and the local workforce looking for affordable dwellings.
- Although not technically located within the proposed PDD, the assisted living facility will be integrated into the PDD to enhance the layout and design of the project and support the sustainability of the Crest Town Center.

3.1 Community Services and Socioeconomic Analysis

3.2.1 Existing Conditions

The various community services and utilities necessary to serve the project include public education (public schools), police and fire protection, public water service, public wastewater treatment and disposal, recreational facilities, and electric and natural gas utilities (**Figures 3-3, 3-4 and 3-5**). This section of the DEIS identifies the specific community and utility service providers that will serve the site, as well as supporting information, as available, regarding service availability, demand, costs and property tax revenue implications. Each affected utility or service provider was contacted twice in writing to inform them of the project and to request general information and input with respect to their ability to serve the conceptual development under the proposed zoning and any issues or concerns they may have. **Appendix D** contains the referenced correspondence with community service providers. Also identified herein is information on the site's existing tax structure, and existing and anticipated future tax revenues.

<u>Taxes</u>

A "Fiscal and Economic Impact Analysis Summary" was prepared consistent with industry standards by NP&V on behalf of the applicant. NP&V's credentials for preparation of such

reports are included in Attachment A of the Fiscal and Economic Analysis Summary which is **Appendix B** of this DEIS. The analysis for the analysis is consistent with the Final Scope elements under Benefits of the Project and Community Services and Socioeconomic Analysis. Outside or additional analysis is not warranted for the purpose of the DEIS; however, the documentation will be subject to review through the DEIS process and any substantive comments will be addressed in the FEIS.

Most of the Town's revenues are levied through property tax assessments, which are based upon a rate per $100 of assessed valuation for a given parcel. During the 2017-18 fiscal year the subject property was taxed at a rate of $339.334 per $100 of assessed valuation. These tax rates account for property taxes paid to the South Country CSD, Suffolk County, Suffolk County Police Department, various Town funds, NYS Metropolitan Transportation Authority and other local taxing jurisdictions. The current tax generation of the property is $84,572.

Table 3-5 provides a summary of the taxing jurisdictions, tax rates and tax revenue compiled for the entire site.

Table 3-5
EXISTING TAX REVENUES

Taxing Jurisdiction	Current Tax Rate (per $100 Assessed Valuation)	Current Tax Revenue	Percent of Total Tax Revenue
School Taxes	**238.187**	**$59,363**	**70.2%**
South Country Central School District	225.341	$56,162	66.4%
South Country Central School District - Library	12.846	$3,202	3.8%
County Taxes	**42.319**	**$10,547**	**12.5%**
Suffolk County	2.545	$634	0.7%
Suffolk County - Police	39.774	$9,913	11.7%
Town Taxes	**23.315**	**$5,811**	**6.9%**
Town - Town Wide Fund	5.129	$1,278	1.5%
Highway - Town Wide Fund	1.463	$365	0.4%
Town - Part Town Fund	2.032	$506	0.6%
Highway - Part Town Fund/Snow Removal	14.691	$3,661	4.3%
Other Taxes	**35.513**	**$8,851**	**10.5%**
New York State MTA Tax	0.144	$36	0.0%
2004 $100M Bond Act and Open Space	1.949	$486	0.6%
Brookhaven Fire Districts	21.178	$5,278	6.2%
Brookhaven Lighting Districts	1.235	$308	0.4%
South Country Ambulance District	7.475	$1,863	2.2%
Real Property Tax Law	2.877	$717	0.8%
Out of County Tuition Tax	0.655	$163	0.2%
TOTAL: ALL TAXING JURISDICTIONS	**339.334**	**$84,572**	**100.0%**

Source: Town of Brookhaven Receiver of Taxes; Analysis by Nelson, Pope & Voorhis, LLC.

Public Schools

The subject property is located within the South Country Central School District (CSD) (**Figure 3-3**). The property is currently vacant; therefore, under existing conditions no school-aged children currently reside at the site. The School District consists of six schools including Verne W. Critz Elementary, Kreamer Street Elementary, Brookhaven Elementary, Frank P. Long Intermediate School, Bellport Middle School, and Bellport High School.

The New York State Education Department indicates that the current general education enrollment in the South Country CSD is 4,371 and the special education enrollment is 662, bringing the total current District enrollment to 5,033. According to the New York State School Report Card, Fiscal Accountability Supplement for the South Country CSD, expenditures averaged $12,596 per general education student and $47,059 per special education student during the 2015-16 academic year. During this academic year, 662 students, or 13.2% of the students within South Country CSD, were enrolled in the special education program.[3] Based on the 2017-18 tax rates and the data provided above in **Table 3-5**, the subject site generates approximately $59,363 in annual property tax allocations to the South Country CSD including $56,162 for the schools and $3,202 for the library.

Police Protection

The site of the Proposed Action and surrounding area are located within the jurisdiction of Suffolk County Police Department's 5th Precinct (**Figure 3-4**). The 5th Precinct serves southern Brookhaven and eastern Islip as well as the Incorporated Villages of Patchogue and Bellport. The Precinct's Police Station is located at 125 Waverly Avenue in Patchogue which is about 5 to 6 miles from the subject property or about a 9-minute drive which would be less for police vehicles with lights and sirens patrolling the area. Based on the 2017-18 tax rates, the subject site currently generates approximately $9,913 in annual property taxes to the SCPD.

Fire Protection

The site and surrounding area are located within the jurisdiction of the Brookhaven Volunteer Fire District (**Figure 3-4**). The Fire Department was founded in 1923 and currently serves the Hamlets of Brookhaven and Shirley and areas west of William Floyd Parkway, including parts of Yaphank and North Bellport. The Fire Department Headquarters is located at 2486 Montauk Highway in the Hamlet of Brookhaven, which is approximately three miles away and a six-minute drive to the site. The Fire District Building is located at 8 Seeley Street which is adjacent to the Headquarters building. The department has a second fire house ("Station 1") which is located at One Camp Upton Road in Shirley. This facility is located approximately 5 miles from the site or an approximately 8 to 10-minute drive from the site. The Fire Department's website indicates it currently has the following fire apparatus:

[3] New York State Department of Education

Fire Department Headquarters
(2486 Montauk Highway, Brookhaven)

5-3-1 Pierce 100 ft. Aerial Put in Service: November, 1999	5-3-2 Pierce Pumper Put in Service: November, 2004	5-3-3 Pierce Rescue Put in Service: July, 2007
5-3-6 Studebaker Hose Truck Put in Service: March, 1957	5-3-8 Pierce Pumper Put in Service: July, 2010	5-3-12 Stump Jumper Put in Service: September, 1995
5-3-15 2007 Chevrolet Express 3500 Fire Police Unit Put in Service July, 2007		

Station 1
(One Camp Upton Road, Shirley)

5-3-4 E-ONE Rescue Pumper Put in Service: March, 1994	5-3-5 Spartan Pumper Put in Service: December, 2015	5-3-9 Pierce Pumper Put in Service: November, 2001
5-3-11 Grumman Ice and Surface Rescue Truck	5-3-12A Stump Jumper Put in Service: May, 2003	5-3-19 2007 Chevrolet Express 3500 Fire Police Unit Put in Service July, 2007
5-3-26 21 Ft. Carolina Skiff Water Rescue		

Chief's Vehicles

5-3-30 2013 Ford Expedition Put in Service: January, 2013	5-3-31 2015 Ford Expedition Put in Service: January, 2015	5-3-32 2017 Chevrolet Suburban Put in Service: January, 2017

Source: Brookhaven Fire Department website, 2017

Funding for fire protection is received through property taxes levied on development within the fire district, as well as any donations and any fundraising that may occur. Based on the 2017-18 tax rates, the subject site generates approximately $5,278 in annual property tax allocations to the Brookhaven Fire District.

Ambulance and Medical Services

The project site is within the service district of South Country Ambulance (**Figure 3-4**). The ambulance corps is a volunteer organization which has served the communities of Bellport, Bellport Village, Brookhaven, Hagerman, East Patchogue, Fire Island, Southaven, South Yaphank, and the Great South Bay since 1940. The Ambulance Company has three stations one at 1309 Montauk Highway in Bellport, one at 5 Cottage Place in Bellport, and one at 32 Seeley Street in Brookhaven. The Seeley Street station is approximately three miles or a six or seven-minute drive from the subject property and is the closest of the three stations. The Ambulance corps has five ambulances, four SUVs, three ATVs and special ops equipment. During 2015,

South Country Ambulance had a total of 3,194 calls and in 2016 it had 3,392 calls. Based on the 2017-18 tax rates, the subject site generates approximately $1,863 in annual property tax allocations to the South Country Ambulance District. Brookhaven Memorial Hospital is located just 2.5 miles southwest of the site.

Water Supply

The project site is located within an existing SCWA drinking water service area and three 12-inch water mains are nearby, including one main along the North Service Road of Sunrise Highway abutting the site, one along Station Road on the west side of the site, and one that is on the north side of Woodside Avenue opposite the site. Connection to the existing water distribution system would, therefore, be relatively easy, as mains are currently present and would only require site service connections and extension of water distribution lines to the site. A SCWA wellfield, pump station and standpipe are also present along Station Road on the west side of the property opposite the intersection of Station Road and Hollow Street. SCWA services are paid by user fees based on user consumption meters. The Applicant is coordinating with SCWA regarding water demand for the project.

Wastewater Treatment and Disposal

The project site is not developed and therefore does not have on-site sanitary systems or an on-site STP. The property is not located within any existing sewer districts but is very close to Suffolk County Sewer District (SCSD) No. 7. SCSD No. 7 consists of two sewage collection/treatment service areas including the Twelve Pines and Woodside service areas, each of which have their own STPs and pump stations. A Twelve Pines STP pump station (Pump Station #5) is located near the easterly property line of the subject property near the Town stormwater recharge basin (**Figure 2-3**).

Parks, Open Space and Recreational Facilities

The project site is currently vacant, wooded and is not used for public recreational purposes. Existing recreational facilities in the immediate area include the following facilities:

- *Martha Avenue Recreational Park* which is located approximately 1,500 feet to the southeast of the subject site and provides outdoor full and half basketball courts, several baseball/softball fields, soccer fields and picnic areas;
- *Twelve Pines Park* is a Town park located approximately one mile west-northwest of the site. This park contains several baseball fields, soccer fields, outdoor basketball courts, two tennis courts and a playground.
- *Town of Brookhaven's Model Airplane Park* is located approximately 2,000 feet to the southeast of the site and is used exclusively for flying model airplanes.

Energy Supply

PSEG Long Island is the public utility in the area that will provide electrical power to the project site. Above and below ground electrical utilities are available along Station Road. National Grid serves as the natural gas provider for the area. An eight-inch National Grid gas main is available along Station Road and a six-inch main is located along Woodside Avenue.

Solid Waste

The subject property is vacant unused forest. No solid waste (trash or recyclables) are currently generated on or from the property. The Town does not provide solid waste collection services to commercial, industrial, and/or multi-unit residential land uses in the Town. In these instances, the property or business owner must contract with a private carter for solid waste removal and disposal services. The Town does have a mandatory source-separation ordinance to require a property owner or business manager to recycle. Solid waste and recyclable materials are accepted from private carters at the Town facility in Yaphank, for a fee.

3.2.2 Potential Impacts

Taxes

Many Town and County services and facilities are supported in large part by the revenues generated by property taxes. The Town of Brookhaven and Suffolk County, as well as other local taxing jurisdictions, can therefore be adversely impacted or benefit from development projects depending on the nature of the development.

The Fiscal and Economic Impact Analysis Summary in **Appendix B** contains a detailed assessment of the potential impacts of the proposed rezoning and **Conceptual Site Plan**. For taxing purposes, the total estimated market valuation of the proposed project is $5.5 million. This is based upon the net operating income of each component of the proposed project.[4] After applying a capitalization rate of 0.1 and an equalization rate of 0.90%, the estimated assessed valuation of the zone change and **Conceptual Site Plan** upon full build-out and occupancy is approximately $495,000. At full build-out, the proposed project is projected to generate over $1.6 million in annual taxes. This represents a net increase of over $1.595 million per year when compared to existing site conditions. The distribution of projected tax revenues and the change in tax generation for each taxing district upon completion of the project is shown in **Table 3-6**.

Based on the data provided in **Table 3-6** and the detailed information provided in the Fiscal and Economic Impact Analysis (**Appendix B**), the proposed project will increase the distribution of tax ratables throughout the South Country CSD, the Town of Brookhaven and Suffolk County. Moreover, the proposed project will generate immediate construction jobs as well as permanent employment opportunities for Town and area residents. Affordable housing will also be provided. These fiscal and economic impacts are expected to provide an overall benefit to the Hamlet, Town, County and State.

Public Schools

The impact of any project upon the local school district in which it is located depends on the number of school-age children that will be added to the school district by the project, the costs of educating new students, and the property tax revenues that will be generated to address the additional costs of providing educational services for these children. Based on projections using Rutgers demographic multipliers, the proposed multifamily component of the project, which will

[4] Net operating income of $2,000,000 for the residential component of the project, $2,000,000 for the commercial component of the project, and $1,500,000 for the assisted living component of the project provided by Crest Bellport, LLC, in December 2017.

consist primarily of studio and one-bedroom apartments and some two-bedroom apartments, is expected to generate an additional 22 school-age children, 20 of whom are expected to attend public schools. These children will be distributed over grades k-12 and will attend the public schools of the South Country CSD. It is noted that the proposed project was modified in response to prior comments from the South Country CSD, in order to reduce the number of school aged children and increase tax ratables. More specifically, the prior proposed project was projected to generate 27 school aged children and result in a surplus of $637,000 after considering the cost of education, while the proposed project will generate 20 school aged children and result in a surplus of over $760,000. Analysis is provided herein.

Table 3-6
ANTICIPATED TAX REVENUE GENERATION

Taxing Jurisdiction	Current Tax Revenue	Projected Tax Revenue	Change in Tax Revenue	Percent of Total Tax Revenue
School Taxes	**$59,363**	**$1,179,026**	**$1,119,662**	**70.2%**
South Country Central School District	$56,162	$1,115,438	$1,059,276	66.4%
South Country Central School District – Library	$3,202	$63,588	$60,386	3.8%
County Taxes	**$10,547**	**$209,479**	**$198,932**	**12.5%**
Suffolk County	$634	$12,598	$11,963	0.7%
Suffolk County – Police	$9,913	$196,881	$186,968	11.7%
Town Taxes	**$5,811**	**$115,409**	**$109,598**	**6.9%**
Town - Town Wide Fund	$1,278	$25,389	$24,110	1.5%
Highway - Town Wide Fund	$365	$7,242	$6,877	0.4%
Town - Part Town Fund	$506	$10,058	$9,552	0.6%
Highway - Part Town Fund/Snow Removal	$3,661	$72,720	$69,059	4.3%
Other Taxes	**$8,851**	**$175,789**	**$166,938**	**10.5%**
New York State MTA Tax	$36	$713	$677	0.0%
2004 $100M Bond Act and Open Space	$486	$9,648	$9,162	0.6%
Brookhaven Fire Districts	$5,278	$104,831	$99,553	6.2%
Brookhaven Lighting Districts	$308	$6,113	$5,805	0.4%
South Country Ambulance District	$1,863	$37,001	$35,138	2.2%
Real Property Tax Law	$717	$14,241	$13,524	0.8%
Out of County Tuition Tax	$163	$3,242	$3,079	0.2%
TOTAL: ALL TAXING JURISDICTIONS	**$84,572**	**$1,679,703**	**$1,595,131**	**100.0%**

Source: Town of Brookhaven Receiver of Taxes; Analysis by Nelson, Pope & Voorhis, LLC.

Increases in enrollment can affect school capacity, the sizes of classrooms, and costs; however, despite this anticipated increase in the cumulative enrollment within the school district, the district enrollment has decreased by 213 students, over the ten (10) year period between the 2006-07 and 2016-17 school years. Moreover, the ability of a school district to handle increased demand for educational services depends primarily upon the adequacy of long-term planning within the district, in combination with increased tax revenue generation to strengthen the tax base of the district and finance the new students' education.

Since the proposed project consists primarily of an assisted living facility, PRC, commercial development and mostly small apartments (primarily a combination of studio and one-bedroom apartments (100 units total) and 60 two-bedroom units), a limited number of school-aged children are expected at the site. The proposed 60 two-bedroom apartments are for the most part the only potential generator of school-age children at the site as the total number of bedrooms in these units is so limited and others will be occupied by "empty-nesters." After meeting with representatives of the school district, the total number of two-bedroom MF dwelling units was reduced by one-third from 90 units to 60 units; while the number of PRC units, which would be age-restricted and not house school-age children, was increased to make up the difference. Despite the small overall increase in school enrollment, this increase will be offset by considerable tax revenues that should result in an actual surplus from the project.

As seen in **Table 3-6**, the proposed project is anticipated to levy tax revenues for the South Country CSD, estimated to total over $1.17 million per year. These property tax revenues would cover all associated expenses incurred by the 20 children to attend public schools, resulting in a net surplus of revenue to the school district of over $760,000 per year. This net increase in revenue could ease the district's need to tap additional fund balances and could also help alleviate an increased burden on other taxpayers in the district. This is shown in **Table 3-7**.

TABLE 3-7
FISCAL IMPACT ON SCHOOL DISTRICT

Parameter	General Education	Special Education	Total: All Students
Student Enrollment: Existing Conditions	4,371	662	5,033
Percentage of Enrollment: Existing Conditions	86.8%	13.2%	100.0%
Number of Additional Students in Public Schools: Proposed Project	17	3	20
Expenditure per Pupil: Existing Conditions	$12,596	$47,059	--
Additional Expenditures: Proposed Project	$214,132	$141,177	$355,309
Projected Tax Revenue Allocated to School District: Proposed Project	--	--	$1,115,438
Net Additional Revenue	--	--	$760,129

Source: South Country CSD; New York State Education Department; Analysis by NP&V.

Police Protection

The project site is located within the jurisdiction of SCPD's 5th Precinct. A letter was sent to the Precinct on December 27, 2017 and an updated letter based on the revised plan was mailed June 13, 2018 informing it of the location, type, and scale of the pending project, and requesting input regarding the Precinct's ability to serve the development and any issues and concerns it may have. A letter was received from the SCPD dated June 25, 2018 confirming that the project site is within the jurisdiction of the Fifth Precinct. No other information was provided and no issues or concerns were raised (**Appendix D**).

It is expected that the project will increase annual tax revenue to the SCPD from the $9,913 to $196,881 for a total increase of $186,968. This increase will help to offset the costs of providing police services at the site.

Fire Protection

Development of the proposed project would incrementally increase the potential need for the services of the Brookhaven Volunteer Fire Department. Project construction will include the use of approved building materials and fire safety infrastructure per the NYS Building Code and the NYS Fire Safety Code. The project will be planned with suitable access for emergency vehicles and will include installation of fire hydrants if and where required during the site plan review process.

On January 3, 2018, a letter was sent to the Brookhaven Fire District requesting general background information about the District, an assessment of its ability to serve the proposed project, and whether it had any concerns over the project. No response was received. An updated letter, based on the revised plan, was subsequently mailed to the Department on June 13, 2018 (**Appendix D**). A response to this letter had not been received as of the date of this DEIS.

The proposed project is expected to increase annual property tax revenue to the Brookhaven Fire District by $99,553 from the existing $5,278 to $104,831. This increase will help to offset for the costs of providing increased fire protective services associated with the development. It is noted that all construction will meet applicable building and fire codes designed to assist with fire control. Based on the anticipated tax revenues, proposed building methods, and prior outreach to the Fire District, no adverse impacts to the Brookhaven Fire District have been identified.

Ambulance and Medical Services

The project site is within the South Country Ambulance Company service district. A letter dated January 3, 2018 was sent to the Ambulance Company requesting its input regarding any issues or concerns it may have with respect to the project and its ability to properly serve the site and future development on the site in the future. No response was received. An updated letter based on the revised plan was later mailed to the Ambulance Corps (**Appendix D**). As of the date of this DEIS, a response had not been received.

It is expected that the **Conceptual Site Plan** will result in an increase in annual property tax revenue to the South Country Ambulance District from $1,863 to $37,001 for an increase of $35,138. This increase is expected to offset the costs of providing fire protective services to the development.

Water Supply

The project will utilize public water which will be supplied by the SCWA via connections to existing 12-inch water mains located along abutting street rights-of-way (Woodside Avenue, Station Road and the North Service Road of Sunrise Highway). The total water requirement for the project has been conservatively estimated to be 119,879 gpd which includes an estimated 95,614 gpd for domestic/operational purposes, as well as an estimated average site landscape irrigation demand of 24,265 gpd averaged over the course of a year. The current water consumption within the water supply area would therefore be increased and could place strain on the system. Meetings with SCWA regarding water demand and protection of the local water supply included recommendations from SCWA for landscaping that has limited need for watering, establishing fewer irrigation zones and using more sprinkler heads in each zone,

considering the installation of a cistern for site irrigation so that flow can be regulated so it occurs during off-peak times, and other possible means to minimize water use during summer months. The Applicant has also abandoned previous plans for a fueling station at the site based on concerns raised by the SCWA (see SCWA letter and attachments in **Appendix D**) and provided a plan that consists of relatively clean/non-hazardous uses that will connect to public sewers. It is noted that the prior water demand was reduced from 123,043 gpd to 119,879 gpd since the first correspondence with SCWA, as a result of changes to the proposed project.

The SCWA provides potable drinking water to its customers, based on established user fees rather than through property tax assessments. Future occupation of the site will therefore be required to pay its share of water delivery costs based on the volume of water used and user fees.

The Applicant is committed to working with the SCWA and other applicable agencies in ensuring that the project will not adversely affect the environment, including area groundwater supplies. A follow up letter dated June 28, 2018 was sent to the SCWA requesting further input on the revised project plans and meetings were held to further discuss the project and any potential impacts. SCWA will have the opportunity to provide further input through the SEQRA process.

Wastewater Treatment and Disposal

The **Conceptual Site Plan** is expected to generate an estimated 95,614 gallons of wastewater per day (gpd). Due to the proposed density of this development, the anticipated volume of wastewater flow, the predominantly residential nature of the land uses, and its location within Suffolk County Groundwater Management Area VI, all sewage generated at the site must be discharged to an STP. The subject site lies directly adjacent to and between two (2) sections of the existing SCSD #7, Medford and sewer pump station exists adjacent to the site. The applicant proposes an out-of-district connection to the Twelve Pines STP, located on the south side of Woodside Avenue, 300 feet west of Pine Gate and 850 feet east of Sipp Avenue. This STP is part of SCSD #7. Contact has been made with the SCSA, an agency within the SCDPW, and the project team has been advised that treatment capacity currently exists at this facility, subject to an application for Conceptual Certification to be submitted to SCSA and full wastewater engineering and SCDHS/SCDPW applications to be completed prior to final site plan approval. The applicants' engineers have prepared the requisite Suffolk County Sewer Agency Application and supporting materials and submitted them to the SCSA for review and approval (**Appendix k**).

Currently, the Twelve Pines STP has a design flow of 0.83 million gallons per day and an average annual operating flow of 0.5 mgd indicating a residual capacity of 0.33 mgd (US Environmental Protection Agency, 2018). Since the proposed action is expected to generate a maximum of 95,614 gpd or 0.0956 mgd, considerable excess capacity is available to serve the project.

Connection to the STP will be at the existing pump station located adjacent to the southeasterly property line of the subject site, known as "Pump Station #5," which is part of SCSD #7. The sanitary design for the proposed development will be completed at the time of Site Plan review including a main to convey wastewater generated on the property to the existing pump station.

The pump station will pump wastewater to the west across the subject property to Station Road, then north along Station Road to Woodside Avenue, and west along Woodside to the Twelve Pines STP using all existing sewer mains of the district. The total distance to the STP is estimated to be 8,900 linear feet. The route of the existing sewer mains are depicted in **Figure 1-3**. The applicant has submitted an application and applicable supporting information to SCSA for Conceptual Certification and awaits the SCSA's final decision. Pump station sizing and final alignment of buildings on the site will be adjusted during Planning Board review.

Parks, Open Space and Recreational Facilities

On-site recreational areas and open space will be provided to serve the MF/PRC and separate PRC components of the project. The MF project will provide a 38,000± SF recreation area that will contain a recreational building and swimming pool; the 76-unit PRC development will have 124,000± SF of dedicated recreational space that would also include an outdoor swimming pool and recreational building; and the 30-unit PRC development will have a recreational area of at least 6,000±SF. Also, as previously noted, the project will involve the purchase and redemption of PBCs and an equivalent donation to the Joseph Macchia Environmental Preservation Capital Reserve Fund to preserve public open space in the Central Pine Barrens. As discussed, other public recreational facilities are available within 1,500± feet to one-mile from the subject site including: Twelve Pines Park, Martha Avenue Recreational Park and the Town of Brookhaven's Model Airplane Park.

A network of sidewalks which will provide safe and convenient pedestrian access will also be provided throughout the site to facilitate pedestrian activity, and greater land use connectivity, as well as to provide passive recreational opportunities.

Energy Supply

PSEG Long Island is the public utility that provides electrical power to the region and above and below ground electrical utilities are currently available along Station Road. National Grid is the natural gas provider in the area. An eight-inch National Grid gas main currently exists along Station Road and a six-inch main is located along Woodside Avenue. Letters were sent to PSEG Long Island and Natural Grid on December 27, 2017 to confirm that they will supply the necessary electrical and natural gas utilities. A letter dated February 22, 2018 was received from PSEG Long Island stating that they "will provide service to the above-referenced project in accordance with [its] filed tariffs and schedules in effect at the time of service." A second updated letter reflecting changes to the plan was subsequently mailed to PSEG Long Island on June 13, 2018, informing them of the proposed changes. No response had been received by the time this DGEIS was submitted to the Town for review.

With regard to National Grid, a response to the December 27, 2017 letter was never received, so a second letter, dated June 13, 2018, was sent to the utility. A response to the second letter had not been received by the time this DEIS was completed. Both utilities routinely provide service to developments on Long Island when facilities are present in the service area in accordance with their filed tariffs and schedules in effect at the time service. Connections will be made to each utility through the creation of an internal distribution network within the proposed development. It is anticipated that both of these energy supply companies maintain adequate resources to supply the proposed project and that service will be able to be provided. In addition, energy

saving devices will be utilized where practical to reduce the total energy demand that will be required by the project site upon completion.

Solid Waste Disposal

The proposed project is expected to generate an estimated total of 10,664.2± lbs. of solid waste per day (5.33± tons/day) based on an estimate that assumes 4 lbs. per resident per day for apartments and PRC units; 5 lbs. per bed per day for nursing homes; 0.13 lbs. per square foot of gross floor area (GFA) per day of retail space; 0.09 lbs. per square foot of GFA per day for restaurant space; and 0.012 lbs. per square for of GFA per day for industry and storage facilities **(Salvato, 2009)**. Due to the operational nature of the land uses (residential, retail, restaurant, market health club) it is not expected that the solid waste stream will contain significant amounts of potentially toxic or hazardous materials, other than empty household/business cleaning fluid containers. The NH-H facility will be responsible for handling any potential materials such as medical or biological wastes, if applicable, in accordance with relevant State and/or County waste pickup and disposal requirements and oversight. See also **Section 2.2.2** for a discussion of pharmaceuticals and groundwater impacts.

The Town does not provide solid waste collection services to commercial, industrial or multi-unit residential developments in the Town. In these instances, the property or business owner must contract with a private carter for solid waste removal and disposal services. The Town does, however, have a mandatory source-separation ordinance that requires property owners or business managers to recycle the wastes they generate on-site. The Town accepts solid wastes and recyclables from private carters at the Town facility in Yaphank, for a fee. Residents can also drop-off wastes at the Town facility such as household hazardous wastes through the Town STOP Program (Stop Throwing Out Pollutants).

3.2.3 Mitigation

- Adherence to the NYS Fire and Building Codes will increase the level of safety from fires. In addition, fire/smoke alarms in all of the units and the HOA recreational buildings will assist in minimizing the incremental increase in demand for fire protective services. Hydrants will be installed if, and where required by the Town and Fire Marshal to ensure that an appropriate water supply is available for firefighting purposes.
- Planting of native or non-water dependent (xeric) landscaping, retaining nearly 25 percent of the site in its existing natural condition, using efficient irrigation systems, establishing a suitable number of irrigation zones, installing more sprinkler heads in each zone, consideration of installing a cistern for site irrigation so that flow can be regulated to occur during times other than peak demand, and possible means to minimize water use during summer months will help reduce water demand. Low-flow/water conserving toilets and fixtures will be installed.
- The project site will connect to the available local water supply and the Applicant will continue to work with the SCWA to fulfill its requirements for protecting the adjacent wellfield and reducing overall project demand.
- Subject to requisite approvals, sanitary waste generated on the subject site will be conveyed treated and disposed at the SCSD No. 7 Twelve Pines STP. The project will have a significant beneficial impact on the South Country CSD as the projected cost to educate 17 general education students and 3 special education students is $355,309 and the projected CSD revenues from the project would be $1,115,438 for a an estimated annual CSD surplus of $760,129.

- Common areas will be maintained privately.
- It is anticipated that sustainable energy-conserving measures, including energy-saving wall insulations, triple-glazed windows and energy efficient mechanical systems will be utilized, thereby mitigating the anticipated increase in energy consumption.
- Use of native or well-adapted plants will be used to reduce irrigation, and fertilizer and pesticide demands.

3.3 Transportation

Appendix L contains the full Traffic Impact Study (TIS) for the proposed rezoning and **Conceptual Site Plan** prepared by Nelson & Pope Engineers and Surveyors (N&P) of Melville, New York. The following summary of existing traffic conditions, as well as the anticipated impacts of the proposed project, has been excerpted from that document.

3.3.1 Existing Conditions

Land Use
As previously discussed, the proposed project will be located on the east side of Station Road spanning from Woodside Avenue (CR 99) to NY27 North Service Road in North Bellport, Town of Brookhaven, Suffolk County, New York. The site is currently undeveloped.

Roadway Conditions
The following is a list of roadways included in the study network surrounding the site. The traffic generated by the proposed mixed-use development will be distributed throughout the network. The general descriptions listed here refer only to the sections of the roadways that exist near the site and their cross-section may vary further away from the site. The average annual daily traffic (AADT) is listed for each roadway where available in the most recent New York State Department of Transportation (NYSDOT) Local Highway Traffic Volumes Report.

Station Road is a north/south roadway under the jurisdiction of the Town of Brookhaven. It provides one travel lane in each direction with exclusive turn lanes at key intersections. Along the site frontage, this roadway experiences annual average daily traffic (AADT) of 12,285 vehicles per day (vpd). The posted speed limit is 30 miles per hour (mph).

Sills Road (CR 101) is a northeast/southwest roadway under the jurisdiction of SCDPW. It provides two travel lanes in each direction separated by a grass median with exclusive turn lanes at key intersections. The average annual daily traffic is 14,323 vpd. The posted speed limit is 45 mph.

Woodside Avenue (CR 99) is an east/west minor arterial roadway under the jurisdiction of NYSDOT. In the vicinity of the study area it provides two lanes per travel direction with exclusive turn lanes at key intersections. The section of Newbridge Road in the vicinity of the study area has an Average Annual Daily Traffic (AADT) volume of approximately 28,876 vpd. The posted speed limit is 40 mph.

Sunrise Highway (NY 27) North Service Road is an east/west roadway that provides access to/from Sunrise Highway and is classified as a principal arterial by NYSDOT. East of Station Road this roadway permits two-way traffic and has an AADT of 2,920 vpd. West of Station

Road this roadway permits travel only in the westbound direction and has an AADT of 6,363 vpd. The posted speed limit is 30 mph.

Sunrise Highway (NY 27) South Service Road is an east/west roadway that provides access to/from Sunrise Highway and is classified as a principal arterial by NYSDOT. East of Station Road this roadway permits two-way traffic and has an AADT of 2,266 vpd. West of Station Road this roadway also permits two-travel and has an AADT of 6,642 vpd. The posted speed limit is 30 mph.

Table 3-8 summarizes the lane configurations and traffic controls at the study intersections.

Table 3-8
INTERSECTION GEOMETRY

Intersection	Approach	Lane Designation*	Traffic Control
Sills Road (CR 101) at Station Road	EB WB NB SB	L-2T-R L-2T-R L-T-R LTR	Traffic Signal
Woodside Avenue (CR 99) at Station Road	EB WB NB SB	L-2T-R L-2T-R L-TR L-TR	Traffic Signal
Woodside Avenue (CR 99) at S Village Drive/Sawgrass Drive	EB WB NB SB	L-2T-R L-2T-R L-TR L-T-R	Traffic Signal
Farber Drive at Station Road	EB WB NB SB	LT-R LTR L-T-R LT-TR	Traffic Signal
NY27 North Service Road at Station Road	WB NB SB	LT-R L-TR L-T-R	Traffic Signal
NY27 South Service Road at Station Road	EB WB NB SB	L-TR LTR L-TR L-TR	Traffic Signal
NY27 North Service Road at Exit 56 WB Ramp	EB WB NB	T T LR	Stop Control (NB)

** L = Left turn lane; T = through lane; R = Right turn lane*

Traffic Volume Data

Turning movement counts were collected at the following study intersections on Wednesday, April 19, 2017 during the AM (7:00-9:00 AM) and PM (4:00-6:00 PM) peak periods. Saturday counts were collected during the midday peak period (11:00AM-2:00PM) on April 22, 2017.

- Sills Road (CR 101) at Station Road
- Woodside Avenue (CR 99) at Station Road
- Woodside Avenue (CR 99) at Sawgrass Drive/S Village Drive
- Farber Drive at Station Road
- NY27 North Service Road at Station Road
- NY27 South Service Road at Station Road
- NY27 North Service Road at NY27 Exit 56 Westbound Ramp

Seasonal adjustment factors of 1.062 and 0.895 for weekday and weekend respectively for June (month of counts) were obtained from data contained in the 2017 NYSDOT Traffic Data Report. These seasonal adjustment factors were developed from NYSDOT continuous data collected for a three-year period. Applying the weekend normalization factors to the traffic volumes will increase the volumes; hence the weekend volumes were normalized. In order to perform a conservative analysis, the weekday data was not normalized since it would result in a decrease in the traffic volumes. The existing intersection peak hour volumes are shown on Figures 3, 4, and 5 and detailed data are contained in Appendix A of the TIS which is available for review in **Appendix L** of this DEIS.

Accident History

Accident data for the sections of roadways and intersections in the vicinity of the site were obtained from the NYSDOT. The most recent data available was from January 1, 2014 to December 31, 2016 (3-year period). The data was reviewed and summarized in the following tables.

Table 2 of the TIS (**Appendix L**) indicates a total of 78 accidents occurred at or in the vicinity of the study intersections during the analysis period. The majority of the accidents resulted in property damage. The location with the greatest number of accidents is the intersection of Sills Road at Station Road with 17 accidents, followed by Woodside Avenue at Station Road and NY27 South Service Road at Station Road with 16 and 13 accidents, respectively. There was one fatal accident recorded during the study period which occurred at the intersection of Farber Drive and Station Road, which was a right-angle collision and the result of a driver losing consciousness while travelling at an unsafe speed.

A review of Table 3 of the TIS (**Appendix L**) indicates that a plurality of the accidents (44%) were rear end accident types. The second most frequent type of accident was right angle accidents and other/unknown accidents (both 15%).

Level of Service Description

While traffic volumes provide an important measure of activity on the adjacent roadway network, evaluating how well that network accommodates those volumes is also important. Therefore, a comparison between peak hour traffic volumes and available roadway capacity was prepared. Capacity, by definition, represents the maximum number of vehicles that can be accommodated given the constraints of roadway geometry, traffic characteristics and controls.

Intersections primarily control capacity within roadway networks, since conflicts exist at these points resulting from through, crossing and turning traffic. Because of these conflicts, congestion is most likely to occur at intersections. Therefore, intersections are studied most often when determining the quality of traffic flow.

To identify the operational characteristics of the study intersections, LOS and capacity analyses and arterial network analyses for the study intersections were performed using *SYNCHRO Version 9* Software. *SYNCHRO*, in conjunction with *SimTraffic*, is a software package that allows for an interactive analysis of a single intersection or a network of intersections and can also be used for modeling and optimizing traffic signal timings. The *SimTraffic* component provides simulations of operations with animation features. *SYNCHRO* implements the Intersection Capacity Utilization (ICU) 2003 method for determining intersection capacity. This method compares the current volume to the intersections ultimate capacity. *SYNCHRO* also implements the methods of the 2010 Highway Capacity Manual (HCM) for urban streets, signalized intersections, and unsignalized intersections for determining intersection capacity analyses. The *HCM* contains procedures and methodologies for estimating capacity and determining LOS for many transportation facilities and modes including signalized and unsignalized intersections.

An intersection's LOS (LOS) describes its quality of traffic flow. It ranges in grade from LOS "A" (relatively congestion-free) to LOS "F" (very congested). The LOS definition, as well as the threshold values for each level, varies according to whether the intersection is controlled by a signal or a stop sign. A brief description is given here, and a more detailed definition is found in **Appendix L**.

The capacity of a signalized intersection is evaluated in terms of the ratio of demand flow rate to capacity (V/C ratio). The capacity for each approach represents the maximum rate of flow (for the subject approach) which may pass through the intersection under prevailing traffic, roadway and signal conditions. The LOS of a signalized intersection is evaluated based on average control-delay measured in seconds per vehicle (sec/veh). The control-delay is calculated using an equation that combines the stopped-delay with the vehicle acceleration/deceleration delay that is caused by the signalized intersection. At the signalized intersections, factors that affect the various approach capacities include width of approach, number of lanes, signal "green time", turning percentages, truck volumes, etc. However, delay cannot be related to capacity in a simple one-to-one fashion. For example, it is possible to have delays in the LOS "F" range without exceeding roadway capacity. Substantial delays can exist without exceeding capacity if one or more of the following conditions exist: long signal cycle length; a particular traffic movement experience a long red time; or progressive movements for a particular lane is poor.

The flow at a two-way stop-controlled (TWSC) intersection is gauged in terms of LOS and capacity. The capacity of a stop-controlled leg is based on the distribution of gaps in the major street traffic, driver judgment in selecting a gap, and the follow-up time required by each driver in a queue. The LOS for a TWSC intersection is determined by the control-delay and is defined for each movement rather than for the overall intersection. As with signalized intersections, HCS quantifies only the average control-delay, which is a function of the approach and the degree of saturation for any particular minor movement.

Existing Condition Analysis

The 2017 existing peak hour traffic volumes depicted in Figures 3, 4 and 5 of the TIS were used to determine the existing capacity and LOS of the study intersections. **Table 3-9** below provides the LOS summary for signalized intersections and **Table 3-10** contains the LOS summary for unsignalized intersections under the Existing Condition calculated through the Synchro software described previously. The detailed analysis worksheets are in Appendix D of the TIS **(Appendix L)**.

Table 3-9
EXISTING CONDITION LOS SUMMARY
Signalized Intersections

			AM Peak		PM Peak		Saturday Peak	
Location	Approach	Movt.	Delay	LOS	Delay	LOS	Delay	LOS
Sills Road (CR 101) at Station Road	EB	L	54.6	D	46.8	D	47.3	D
		T	21.9	C	25.4	C	21.6	C
		R	0.0	A	0.0	A	0.2	A
	WB	L	41.5	D	49.5	D	54.2	D
		T	20.3	C	26.9	C	20.1	C
		R	0.0	A	0.0	A	0.1	A
	NB	L	18.1	B	17.7	B	17.3	B
		T	23.9	C	22.8	C	21.1	C
		R	2.5	A	4.1	A	2.2	A
	SB	LTR	43.5	D	35.8	D	31.5	C
		Intersection	28.2	C	29.4	C	26.1	C
Woodside Ave (CR 99) at Station Road	EB	L	32.5	C	37.5	D	31.8	C
		T	29.9	C	33.6	C	29.0	C
		R	0.4	A	2.3	A	2.5	A
	WB	L	35.2	D	39.9	D	32.7	C
		T	19.8	B	26.5	C	22.7	C
		R	0.1	A	1.3	A	0.2	A
	NB	L	21.7	C	15.3	B	15.8	B
		TR	37.4	D	39.8	D	45.5	D
	SB	L	13.7	B	15.8	B	14.4	B
		TR	56.3	E	35.2	D	44.9	D
		Intersection	33.2	C	30.1	C	32.2	C
Woodside Ave (CR 99) at Sawgrass Dr/S Village Dr	EB	L	7.2	A	6.1	A	4.5	A
		T	4.9	A	4.8	A	3.6	A
		R	0.8	A	1.7	A	2.0	A
	WB	L	5.0	A	5.0	A	3.9	A
		T	4.9	A	4.7	A	3.6	A
		R	0.5	A	0.4	A	1.2	A
	NB	L	21.7	C	27.1	C	14.6	B
		TR	18.1	B	20.0	B	12.2	B
	SB	L	20.6	C	27.3	C	14.0	B
		T	20.0	B	24.7	C	14.2	B
		R	9.9	A	10.9	B	7.6	A
		Intersection	8.0	A	8.8	A	5.6	A
			AM Peak		PM Peak		Saturday Peak	

			AM Peak		PM Peak		Saturday Peak	
Location	Approach	Movt.	Delay	LOS	Delay	LOS	Delay	LOS
Farber Drive/Driveway at Station Road	EB	LT	32.8	C	35.8	D	40.1	D
		R	5.7	A	9.0	A	12.0	B
	WB	LTR	0.0	A	25.0	C	0.0	A
	NB	L	3.1	A	4.9	A	9.9	A
		T	4.9	A	6.1	A	7.1	A
		R	0.0	A	0.0	A	0.0	A
	SB	LTR	7.1	A	10.4	B	16.2	B
		Intersection	6.8	A	10.0	B	14.6	B
NY 27 North Service Road at Station Road	WB	LT	43.9	D	51.0	D	61.6	E
		R	32.2	C	37.7	D	52.6	D
	NB	L	7.1	A	8.0	A	6.1	A
		TR	8.8	A	5.7	A	5.2	A
	SB	L	12.0	B	11.0	B	9.0	A
		T	18.8	B	17.4	B	13.7	B
		R	3.6	A	2.9	A	2.2	A
		Intersection	17.5	B	14.6	B	14.5	B
NY 27 South Service Road at Station Road	EB	L	42.7	D	152.0	F	46.3	D
		TR	122.6	F	296.9	F	50.5	D
	WB	LTR	0.2	A	25.4	C	0.2	A
	NB	L	9.0	A	7.4	A	13.0	B
		TR	24.0	C	20.4	C	37.6	D
	SB	L	7.1	A	8.8	A	28.9	C
		TR	13.9	B	7.6	A	15.6	B
		Intersection	40.8	D	83.1	F	33.8	C

Sills Road (CR 101) at Station Road

The signalized intersection of Sills Road at Station Road currently operates at overall LOS C during the weekday AM and PM peak hours and the Saturday midday peak hour.

Woodside Avenue (CR 99) at Station Road

The signalized intersection of Woodside Avenue and Station Road currently operates at overall LOS C during the weekday AM and PM peak hours and the Saturday midday peak hour.

Woodside Avenue (CR 99) at Sawgrass Drive/S Village Drive

The signalized intersection of Woodside Avenue and Sawgrass Drive/S Village Drive currently operates at overall LOS A during the weekday AM and PM peak hours and the Saturday midday peak hour.

Farber Drive/Driveway at Station Road

The signalized intersection of Farber Drive and Station Road currently operates at overall LOS A during the weekday AM peak hour and at LOS B during the weekday PM peak hour and the Saturday midday peak hour.

NY27 North Service Road at Station Road

The signalized intersection of NY27 North Service Road at Station Road currently operates at LOS B during the weekday AM and PM peak hours and the Saturday midday peak hour.

NY27 South Service Road at Station Road

The signalized intersection of NY27 South Service Road at Station Road currently operates at LOS D, LOS F and LOS C during the weekday AM, weekday PM and Saturday midday peak hours, respectively.

Table 3-10

EXISTING CONDITION LOS SUMMARY
Unsignalized Intersections

			AM Peak		PM Peak		Saturday Peak	
Location	Approach	Movt.	Delay	LOS	Delay	LOS	Delay	LOS
NY 27 North Service Road at Westbound Exit 56 Ramp	NB	LR	11.1	B	10.5	B	10.4	B

NY27 North Service Road at Westbound Exit 56 Ramp

The northbound approach of the unsignalized intersection of NY27 North Service Road at Westbound Exit 56 Ramp currently operates at LOS B during the weekday AM and PM peak hours and the Saturday midday peak hour.

3.3.2 Potential Impacts

No Build Condition

The No Build Condition represents traffic conditions expected at the study intersections in the future year 2020 without the construction of the proposed project. The No Build Condition traffic volumes are estimated based on two factors as follows:

- Increases in traffic due to general population growth and developments outside of the immediate project area. This traffic increase is referred to as ambient growth.
- Other planned projects located near the project site that may affect traffic levels and patterns at the study intersections in this report.

Traffic Growth

A 2.0% annual growth factor was obtained from the New York State Department of Transportation (NYSDOT) Long Island Transportation Plan 2000 Study (LITP2000) for the Town of Brookhaven (south). The existing traffic volumes were increased by this factor for a period of three (3) years to project volumes to the year 2020.

Other Planned Projects

"Other Planned Projects" is a term that refers to developments located near the project site that are currently under construction or in the planning stages. Traffic generated by these projects

may significantly influence the operations of the study intersections and would not be represented in the field data collected. The Town of Brookhaven was contacted to obtain information on any planned projects in the area. At the time this study was conducted, no planned project was provided to us by the Town. The No Build traffic volumes are shown on Figures 6, 7 and 8 of the TIS in **Appendix L** of this DEIS.

Proposed Development

Site Access

As depicted on the site plan prepared by Nelson & Pope, access to the proposed project will be provided via five (5) driveways, as follows:

1. S Village Drive at Site Access – full movement driveway
2. Woodside Avenue at Site Access – right-turn entrance only driveway
3. Station Road at Site Access – full movement driveway
4. NY27 North Service Road at Site Exit – right-turn exit only driveway
5. NY27 North Service Road at Site Access – full movement driveway

Trip Generation

To identify the impacts, the proposed project may have on the adjacent street system, it is necessary to estimate the magnitude of traffic volume generated during the peak hours and to estimate the directional distribution of the site traffic when entering and exiting the subject property.

The trip generation estimates for the uses of the proposed project were prepared utilizing data from the ITE publication, *Trip Generation Manual, Tenth Edition*. The ITE trip generation publication sets forth trip generation data obtained by traffic counts conducted at sites throughout the country. The *ITE Trip Generation Handbook* is a valuable reference for traffic studies, as it is by far the most comprehensive source of empirical data on traffic impacts for different land uses. It should be noted that the basic premise behind the data presented in the *ITE Trip Generation Handbook* is that data is collected at single use/freestanding sites and does not take into account interaction between different uses on the same site. Recommended procedures provide guidance for estimating internal capture at multi-use developments, as described in Chapter 7 of the *ITE Trip Generation Handbook*. Another phenomenon noted in the *ITE Trip Generation Handbook* is that traffic associated with some uses, especially retail uses is not 100% newly generated, a significant portion of these trips will be "pass-by" traffic, described as a trip that someone makes en route to their destination. An example of a pass-by trip is when someone stops for gas on the way to/from work and the gas station is on the typically travelled route. The proposed project is designated a Planned Development District (PDD) with mixed-uses. Therefore, to estimate the trips generated by the Proposed Project, the following steps were undertaken:

- Obtain the trip generation estimates from the ITE Trip Generation Manual.
- Apply pass-by credit to the restaurant and retail uses only.
- Utilize the internal trip capture methodology contained in Chapter 7 of the ITE Trip Generation Handbook.

Trip Generation with No Adjustment

The trip generation estimates for all the proposed uses under the Proposed Project were prepared utilizing data from the ITE publication, *Trip Generation Manual, Tenth Edition*.

- LUC 151 – Mini Warehouse
- LUC 220 – Multi-Family Housing, Low Rise
- LUC 251 – Senior Adult Housing Detached
- LUC 254 – Assisted Living
- LUC 492 – Health/Fitness Club
- LUC 820 – Shopping Center
- LUC 932 - High-Turnover Sit-Down Restaurant

The following table is a summary of the estimated trip generation for the components of the proposed project, without any trip reduction.

Table 3-11
TRIP GENERATION

Time Period	Apartments	Assisted Living	Senior Housing	Restaurant	Fitness Club	Retail	Mini-Storage	TOTAL
	160 Units	130 Beds	106 Units	180 Seats	33,600 SF	15,000 SF	119,600 SF	
AM	13 enter	16 enter	14 enter	45 enter	22 enter	9 enter	7 enter	126 enter
	51 exit	7 exit	29 exit	41 exit	22 exit	5 exit	5 exit	160 exit
	64 total	23 total	43 total	86 total	44 total	14 total	12 total	286 total
PM	56 enter	19 enter	30 enter	43 enter	69 enter	27 enter	9 enter	253 enter
	30 exit	19 exit	20 exit	33 exit	52 exit	30 exit	11 exit	195 exit
	86 total	38 total	50 total	76 total	121 total	57 total	20 total	448 total
SAT.	50 enter	16 enter	6 enter	50 enter	52 enter	35 enter	9 enter	218 enter
	42 exit	19 exit	6 exit	45 exit	55 exit	33 exit	11 exit	211 exit
	92 total	35 total	12 total	95 total	107 total	68 total	20 total	429 total

Source: Trip Generation, 10th Edition, published by ITE

As can be seen from the above table, the 160 apartments are anticipated to generate 64, 86 and 92 trips during the AM, PM and Saturday peak hours, respectively. The 130 beds of assisted living are anticipated to generate 23, 38 and 35 trips during the AM, PM and Saturday peak hours, respectively. The 106 senior housing units are anticipated to generate 43, 50 and 12 trips during the AM, PM and Saturday peak hours, respectively. The 180-seat restaurant is anticipated to generate 86, 76 and 95 trips during the AM, PM and Saturday peak hours, respectively. The 33,600 SF fitness club is anticipated to generate 44, 121 and 107 trips during the AM, PM and Saturday peak hours, respectively. The 15,000 SF Retail component is anticipated to generate 14, 57 and 68 trips during the AM, PM and Saturday peak hours, respectively. The 119,600 SF mini-storage facility is anticipated to generate 12, 20 and 20 trips during the AM, PM and Saturday peak hours, respectively. Therefore, the total unadjusted trip generation for the proposed project is 286, 448 and 429 tips during the AM, PM and Saturday peak hours, respectively.

Pass by Credit

It should also be noted that, according to studies conducted by the ITE, traffic associated with retail and restaurant uses are not 100% newly generated; a portion of these trips will be "pass-by" traffic. Therefore, pass-by credit has been applied to the restaurant and retail components of the proposed project. Average pass-by credit of 43% was applied to the PM trips and 20% was applied to the Saturday trips (source: ITE Trip Generation Handbook) to the unadjusted trip generation of the restaurant use. Average pass-by credit of 34% was applied to the PM trips and 26% was applied to the Saturday trips (source: ITE Trip Generation Handbook) to the unadjusted trip generation of the retails use.

Adjustment for Internal Capture Trips

It should be noted that the basic premise behind the data presented in the *ITE Trip Generation Handbook* is that data is collected at single use/freestanding sites and does not take into account interaction between different uses on the same site. However, in a multi-use development like the proposed project, a portion of the traffic utilizing the retail, restaurant and fitness club will originate from the residential portion of the development and will not utilize surrounding roadways. Therefore, the combined trip generation data for the retail, restaurant and residential uses obtained from ITE presented above will be higher than the anticipated site generated traffic utilizing the study area roadways. Therefore, internal credits between the retail, residential and restaurant uses were calculated in accordance with procedures for estimating internal capture at multi-use developments, described in Chapter 7 of the *ITE Trip Generation Handbook.* For the fitness club, 10% interaction was assumed. The calculations of the internal capture rates for this project are contained in the Appendix of the report.

Table 3-12
ADJUSTED TRIP GENERATION

Time Period	Apartments	Assisted Living	Senior Housing	Restaurant	Fitness Club	Retail	Mini-Storage	TOTAL
	160 Units	130 Beds	106 Units	180 Seats	33,600 SF	15,000 SF	119,600 SF	
AM	12 enter	16 enter	12 enter	42 enter	20 enter	3 enter	7 enter	112 enter
	49 exit	7 exit	28 exit	34 exit	20 exit	3 exit	5 exit	146 exit
	61 total	23 total	40 total	76 total	40 total	6 total	12 total	258 total
PM	51 enter	19 enter	27 enter	15 enter	62 enter	5 enter	9 enter	188 enter
	23 exit	19 exit	15 exit	11 exit	47 exit	9 exit	11 exit	135 exit
	74 total	38 total	42 total	26 total	109 total	14 total	20 total	322 total
SAT.	39 enter	16 enter	5 enter	27 enter	47 enter	6 enter	9 enter	149 enter
	26 exit	19 exit	4 exit	22 exit	49 exit	11 exit	11 exit	142 exit
	65 total	35 total	9 total	49 total	96 total	17 total	20 total	291 total

As can be seen from the table above, the Proposed Project is anticipated to generate 258 new trips (112 entering and 146 exiting) during the weekday AM peak hour, 322 new trips (188 entering and 135 exiting) during the weekday PM peak hour and 291 new trips (149 entering and 142 exiting) during the Saturday midday peak hour.

Trip Distribution and Assignment

The volume of site traffic expected to be generated by the proposed project during peak hours was distributed and assigned to each intersection movement based on existing roadway volumes

and travel patterns. The nature of the proposed land uses and their associated travel patterns were considered as well. Figure 9 of the TIS (provided in **Appendix L** of this DEIS) depicts the trip distribution for the proposed project. Figures 10, 11 and 12 of the TIS depict the site generated traffic volumes for the weekday AM and PM peak hours and Saturday midday peak hours. The site generated traffic volumes were then added to the weekday AM, PM and Saturday No Build Condition volumes resulting in the Build Condition volumes. The Build volumes are depicted in TIS in Figures 13, 14 and 15 (**Appendix L** of this DEIS).

Traffic Impact Analysis and Mitigation

In order to identify the impacts created by the proposed project, capacity analyses were conducted at the study intersections for the No Build and Build Conditions during the weekday AM, PM and Saturday midday peak hours. The results of the capacity analyses for the No Build and Build Conditions were compared to determine the impact that will be created on the study intersections by the proposed project.

Tables 8 through 13 of the TIS (**Appendix L**) summarize the No Build, Build and Build with Mitigation Conditions for the AM peak hour, PM peak hour and Saturday midday peak hour, respectively. These tables are followed by a detailed description of each intersection, the LOS comparison, and the mitigation employed to maintain an acceptable LOS or achieve No Build LOS.

Sills Road (CR 101) at Station Road

In the No Build Condition, the signalized intersection of Sills Road (CR 101) at Station Road is projected to operate at LOS C during all peak hours, from an overall perspective. During the AM and Saturday peak hours, all individual movements will operate at LOS E or better. During the PM peak hour, all individual movements will operate at LOS D or better. With the construction of the proposed project, individual movements of this intersection will experience changes in LOS during the PM and Saturday peak periods while the overall LOS remain the same during all peak periods. The PM and Saturday peak period impacts were mitigated by performing timing adjustments while maintaining the current cycle lengths. Upon implementation of these mitigation measures LOS will return to No Build levels.

Woodside Avenue (CR 99) at Station Road

In the No Build Condition, the signalized intersection of Woodside Avenue (CR 99) at Station Road is projected to operate at LOS D during all peak hours, from an overall perspective. During the PM and Saturday midday peak hours all movement will operate at LOS D or better. During the AM peak hour all movements will operate at LOS E or better. With the construction of the proposed project, the individual movements of this intersection will experience changes in LOS during all peak hours, but overall LOS will remain the same. The anticipated peak period impacts were mitigated by performing timing adjustments while maintaining the current cycle lengths. Upon implementation of these mitigation measures LOS will return to No Build levels.

Woodside Avenue (CR 99) at Sawgrass Drive/S Village Drive

In the No Build Condition, the signalized intersection of Woodside Avenue (CR 99) at Sawgrass Drive/S Village Drive is projected to operate at LOS A during all peak hours, from an overall perspective and individual movements will operate at LOS C or better. With the construction of the proposed project, the intersection will continue to operate at No Build conditions during the

analyzed peak periods. Therefore, no significant impacts are created, and no mitigation measures are proposed at this intersection.

Farber Drive/Driveway at Station Road
In the No Build Condition, the signalized intersection of Farber Drive/Driveway at Station Road is projected to operate at LOS A during the weekday AM peak hour and at LOS B during the PM and Saturday peak hours. With the construction of the proposed project, the intersection will continue to operate at No Build conditions during the analyzed peak periods. Therefore, no significant impacts are created, and no mitigation measures are proposed at this intersection.

NY27 North Service Road at Station Road
In the No Build Condition, the signalized intersection of NY27 North Service Road at Station Road is projected to operate at LOS B during all peak hours, from an overall perspective. During the AM and PM peak hours individual movements will operate at LOS D or better. During the Saturday peak hour individual movements will operate at LOS E or better. With the construction of the proposed project, the intersection will continue to operate at No Build conditions during the AM peak hour but changes in LOS for the westbound left-turn/through movement during the PM and Saturday peak hours are anticipated. During these periods, impacts were mitigated by modifying signal timing while maintaining the current cycle length. Upon implementation of these mitigation measures LOS and delay will return to No Build conditions.

NY27 South Service Road at Station Road
In the No Build Condition, the signalized intersection of NY27 South Service Road at Station Road is projected to operate at LOS D during the AM and Saturday peak hours and at LOS F during the PM peak hour, from an overall perspective. During the AM and PM peak hours individual movements will operate at LOS F or better. During the Saturday peak hour individual movements will operate at LOS E or better. With the construction of the proposed project, the individual movements of this intersection will experience changes in LOS during all peak hours and overall LOS change only during the AM peak hour. The anticipated impacts during the AM and PM peak periods were mitigated by performing timing adjustments while maintaining the current cycle length. During the Saturday peak period, impacts were mitigated by increasing the cycle length to 80 seconds (10 second increase) and optimizing split timings. Upon implementation of these mitigation measures LOS will be returned to No Build conditions.

NY 27 North Service Road at NY 27 Westbound Exit 56 Ramp
In the No Build condition, the stop-controlled northbound approach (NY 27 Westbound Exit 56 Ramp) is anticipated to operate at LOS B during all peak hours studied. After the completion of the project, this approach will continue to operate at No Build LOS with minimal increase in delay.

S Village Drive at Site Access
After the completion of the proposed project, the stop-controlled eastbound site access approach is anticipated to operate at LOS A during all peak hours. The northbound left-turn movement is anticipated to operate at LOS A during all peak hours.

Station Road at Site Access

After the construction of the proposed project, the stop-controlled westbound left-turn movement is anticipated to operate at LOS D, E and E during the AM, PM and Saturday peak hours respectively. The stop-controlled westbound right-turn movement is anticipated to operate at LOS B during all peak hours. The southbound left-turn movement is anticipated to operate at LOS A during all peak hours.

NY 27 North Service Road at Site Exit
After the construction of the proposed project, the stop-controlled southbound right-turn movement of the site exit is anticipated to operate at LOS B during the AM peak hour and at LOS A during the PM and Saturday peak hours.

NY 27 North Service Road at Site Access
After the construction of the proposed project, the eastbound left-turn movement is anticipated to operate at LOS A during all peak hours. The stop-controlled southbound approach is anticipated to operate at LOS A during all peak hours.

3.3.3 Conclusion and Proposed Mitigation

Nelson & Pope has investigated the potential traffic impacts associated with the proposed mixed-use development to be located on the east side of Station Road spanning from Woodside Avenue (CR 99) to NY27 North Service Road, Suffolk County, New York. Access to the site will be provided via five (5) driveways with a mix of full access and restricted access. The site is currently undeveloped. The following is a summary of this investigation and the findings thereof:

1. The following intersections were studied:

    - Sills Road (CR 101) at Station Road
    - Woodside Avenue (CR 99) at Station Road
    - Woodside Avenue (CR 99) at Sawgrass Drive/S Village Dr
    - Farber Drive at Station Road
    - NY27 North Service Road at Station Road
    - NY27 South Service Road at Station Road
    - NY27 North Service Road at NY27 Exit 56 Westbound Ramp

2. Existing traffic volumes were counted in April 2017. Future No Build traffic volumes were determined by applying a 2.0% NYSDOT annual growth factor to the existing traffic volumes projected to 2020, the anticipated build year. The site-generated traffic was estimated and distributed to the study intersections and then added to the No Build traffic volumes to generate the future Build traffic volumes.

3. The proposed mixed-use development generate is anticipated generate 258 new trips (112 entering and 146 exiting) during the weekday AM peak hour, 322 new trips (188 entering and 135 exiting) during the weekday PM peak hour and 291 new trips (149 entering and 142 exiting) during the Saturday midday peak hour.

4. Capacity analyses were conducted at all study intersections during the weekday AM, weekday PM and Saturday midday peak hours for the 2017 Existing Condition, 2020 No Build Condition and 2020 Build Condition.

5. The signalized intersections of Woodside Avenue (CR 99) at Sawgrass Drive/S Village Drive and Farber Drive/Driveway at Station Road are projected to continue operating at No Build LOS during all peak hours.
6. Impacts associated with the proposed project will be mitigated at the remaining signalized intersections by performing timing adjustments. A modification of the cycle length and timing modifications are proposed at the intersection of the NYS 27 South Service Road at Station Road during the Saturday midday peak hour only. Upon implementation of the mitigation measures detailed in the body of the report, these intersections will return to operating at No Build LOS.
7. With the construction of the proposed project, all but one of the individual turning movements for the site driveways are anticipated to operate at LOS B or better. The westbound left-turn movement of the Station Road access is anticipated to operate at LOS D during the AM peak and at LOS E during the PM and Saturday peak periods.

Based on the results of the Traffic Impact Study as detailed in the body of this report, it is the professional opinion of Nelson & Pope that constructing the proposed mixed-use PDD with the implementation of the proposed signal timing modifications will not result in any adverse traffic impacts in the study area.

3.4 Noise, Odors and Outdoor Lighting

3.4.1 Existing Conditions

Noise

The environmental impact of noise can have various effects on human beings ranging from annoyance to hearing loss. A noise problem is said to exist when noise interferes with human activities (**Rau and Wooten, 1980**). Various noise scales have been developed to describe the response of an average human ear to sound. The most common unit utilized to characterize noise levels is the A-weighted decibel (dBA), which weighs the various components of noise according to the response of the human ear. Because the human ear perceives the middle range of frequencies better than the high or low frequencies, the dBA scale assigns the middle range a much larger "loudness" value than higher and lower frequencies. For the purpose of this report, sound levels are reported in L_{eq} and range (minimum/maximum). L_{eq} refers to the energy-average sound level for a specific time period and relates sound intensity level to time as the "equivalent sound level" scale expressed in dBA. L_{eq} is commonly utilized as a statistical average sound level in noise impact prediction.

Physical measurements of noise may be measured in dBA using a sound level meter. The meter collects frequency values, which are automatically interpreted as a function of human hearing frequency response (according to the weighted decibel scale). The weighted scale thus provides a measure of noise that is meaningful for assessing ambient noise environments and potential noise impacts as heard by human beings. On average, a change of 3 dBA is required for the average person to detect a difference in the level of noise, whereas a change between 2 and 3 dBA is the level associated with the threshold of detection and a change in the range of 5 dBA is noticeable and is considered to be an impact (see **Table 3-13**).

Table 3-13
AVERAGE ABILITY TO PERCEIVE CHANGES IN NOISE LEVELS

Change (dBA)	**Human Perception of Change in Sound Levels**
2-3	Barely perceptible, threshold of detection
5	Readily noticeable
10	Doubling or halving of the loudness of sound
20	Dramatic change
40	Difference between a faintly audible sound and very loud sound

Source: Fundamentals and Abatement of Highway Traffic, Report No. PB-222-703, FHWA, June 1973.

As a point of reference and comparison, an increase of 3 dBA equates to a doubling of the sound energy. This phenomenon is related to the logarithmic nature of the decibel scale, which will be explained below. In the same respect, a decrease of 3 dBA appears to the listener as a halving of noise. **Table 3-14** relates changes in dBA to a receiver as compared to a base reference of 60 dBA.

Physical measurements of noise may be measured in dBA using a sound meter. The meter collects frequency values, which are automatically interpreted as a function of human hearing frequency response (according to the A-weighted decibel scale). The weighted scale thus provides a measure of noise which is meaningful for assessing ambient noise environments and potential noise impacts as heard by human beings. Sound levels decrease with distance from the source as a result of dispersion which is predicted using the "inverse square law," which applies a reduction of 4.5 dBA for each doubling of distance from a line source (such as a roadway) and 6 dBA reduction for a point source (a stationary source). This reduction effect is due to natural dispersion only and is not a function of the presence of barriers or other objects (**USDOT, 1980**), which may result in additional attenuation of noise. Also, because the decibel scale is logarithmic, the laws for addition of logarithms must be utilized for addition of decibels. The addition of two similar noise levels will result in an increase of 3 dBA. For example, a noise level of 50 dBA added to an existing noise level of 50 dBA would result in an end noise level of 53 dBA, an increase that is considered to be the threshold for human detection. In addition to attenuation by distance from the source, vegetation and noise barriers also result in attenuation of noise levels. Densely wooded areas are expected to have an attenuation rate of 5 dBA for every 100-foot depth of woods (up to a maximum attenuation of 10 dBA). For low-density vegetation, a nominal amount of attenuation of 2 to 3 dBA per 100 feet of woods may be expected to occur. The attenuation of noise due to barriers (walls and buildings) is a function of the height and composition of the barrier. A barrier capable of reducing sound energy transmission through the structure which interrupts the line of sight between a source and a receptor, will generally provide a minimum sound reduction of 5 dBA.

By utilizing this information, it is possible to combine the background noise, source noise and attenuating factors to predict sound levels resulting from a particular source. The adjusted level is the noise level associated with the source after it is attenuated by distance and other attenuating factors such as structures interrupting the line of sight between the source and receptor, noise barriers, and thick vegetation. The adjusted level is combined with the ambient level using the concepts of decibel addition.

Table 3-14
COMMON NOISE LEVELS AND REACTIONS

Sound Source	**Noise Level** (dBA)	**Apparent Loudness**	**Typical Human Reaction**
Military jet Air raid siren	130	128X as loud	Limit of amplified speech
Amplified rock music	110	32X as loud	Maximum vocal effort
Jet takeoff at 500 meters Train horn at 30 meters	100	16X as loud	
Freight train at 15 meters	95		
Heavy truck at 15 meters Busy city street Loud shout	90	8X as loud	Very annoying Hearing damage (8+ hours)
Busy traffic intersection	80	4X as loud	Annoying
Highway traffic at 15 meters Train horn at 500 meters Noisy restaurant	70	2X as loud	Telephone use difficult
Predominantly industrial areas Light car traffic at 15 meters City or commercial areas Residential areas close to industry Noisy office	60	Base reference	Intrusive
Quiet office Suburban areas with medium-density transportation	50	1/2 as loud	Speech interference
Public library	40	1/4 as loud	Quiet
Soft whisper at 5 meters	30	1/8 as loud	Very quiet
	10	1/32 as loud	Just audible
Threshold of hearing	0	1/64 as loud	

Note: The minimum difference in noise level noticeable to the human listener is 3 dBA. A 10 dBA increase in level appears to double the loudness, while a 10 dBA decrease halves the apparent loudness.

Source: **(NYSDOT, 1980 and White, 1975)**

Local noise regulations are contained in Chapter 50 of Brookhaven Town Code, which defines prohibited acts and sets maximum permissible sound levels between properties for certain periods of the day. Specifically, the code states that: *No person shall cause, suffer, allow or permit the operation of any source of sound on a particular category of property or any public land or right-of-way in such a manner as to create a sound level that exceeds the particular sound level limits set forth in Table I when measured at or within the real property line of the receiving property.*

Noise from construction activity is exempted from the maximum permissible sound levels, except as provided for in §50-6B(7). As per §50-6B(7), operating or permitting the operation of any tools or equipment used in construction, drilling, earth moving, excavating or demolition

work between the hours of 6:00 PM and 7:00 AM the following day on weekdays or at any time on weekends or legal holidays is not exempted from the maximum permissible sound levels[5].

Also exempted is noise generated by domestic power tools, lawn mowers and agricultural equipment, when operated with a muffler, between the hours of 8:00 AM and 8:00 PM on weekdays and 9:00 AM and 8:00 PM on weekends and legal holidays, provided that they produce less than 85 dBA at any real property line of a residential property.

As illustrated in the Chapter 50 Attachment 1 Table I (image included below), there is a higher threshold for commercial or industrial land use when considering the source property as compared to residential sources. For example, the maximum sound level generated by commercial or industrial property measured at a residential property line is 65 dBA for 7 AM to 10 PM, whereas the level is 55 dBA from a residential source.

Maximum Permissible A-Weighted Sound Pressure Levels by Receiving Property Category, in dBA

	Receiving Property Category					
	Another Apartment Within Multidwelling Building		Residential			
Sound Source Property Category	7:00 a.m. to 10:00 p.m.	10:00 p.m. to 7:00 a.m.	7:00 a.m. to 10:00 p.m.	10:00 p.m. to 7:00 a.m.	Commercial All Times	Industrial All Times
Apartment within multidwelling building	45	40	55	50	65	75
Residential	--	--	55	50	65	75
Commercial or public lands or rights-of-way	--	--	65	50	65	75
Industrial	--	--	65	50	65	75

In order to assess potential noise impacts of the project, several factors must be considered including the location of potential sensitive noise receptors, existing background environment and sources of noise, potential noise generated by the project, and noise attenuation factors. As

[5] Unless construction is considered, emergency work, is approved by special variance issued by the Noise Control Administrator or when created as a result of the operation of any of said equipment by or for any municipal agency.

the subject sites are not presently developed or occupied, only natural sources of noise are generated on the site, and no adverse impacts to the area are attributable to the project site.

The proposed development site is located between Woodside Avenue to the north, Bellport Station Road to the west and Sunrise Highway to the south, and vehicular traffic is the major source of the ambient noise environment in the area. The primary receptors for consideration of potential noise impacts are the residential neighborhoods to the east, adjacent to the site separated by a paper street known as Walker Avenue (generally 70 feet in width though decreasing to approximately 10 feet in width towards the Town recharge basin adjacent to the site at the southern end of the property) and a residential neighborhood west of the site opposite from and accessed from Bellport Station Road. Other proximate uses include industrial uses and a Suffolk County Water Authority property, all fronting on the east side of Bellport Station Road, as well as additional industrial and commercial uses on the west side of Bellport Station Road.

NP&V conducted a field visit at the property and in the surrounding area to present a characterization of noise sources and to monitor the typical sound levels during typical morning hours. Several sound level monitoring stations were selected along the subject site property line and within the neighborhoods to the east and one to the west. Station locations are shown in the figure contained in **Appendix M**. These locations were selected as being areas closest to proposed development areas on the site and representing the worst case for analysis of potential noise related impacts at nearby properties.

The sound level measurements were collected on June 22, 2018 beginning at 7:00 AM using a SPER Scientific Model 8400029 Digital Type II Sound Level Meter that was calibrated before the period of readings. The time of monitoring was chosen to represent a time period with typical ambient noise. One hundred noise readings were taken at 10-second intervals at the stations and from these data the average continuous sound level was computed.

Sound levels fluctuate, and it is common to provide an average of sound levels over a period of time to describe the "equivalent continuous noise level" or L_{eq}. Sound level data sheets providing all measurements taken at 10 second intervals for each of the locations are provided in **Appendix M** and a summary of the L_{eq} results are provided in **Table 3-15**. The following provides a description of the station locations:

- Station 1 is located on the property line in the northeastern area of the site and at the approximate location of proposed development entrance from South Village Drive.
- Station 2 is located approximately 10' from the eastern property line to represent a location with the minimum setback between a construction area and residential property line.
- Station 3 is located at the intersection of Horizon Lane and South Village Drive to represent the typical level within the neighborhood and similar to levels that would be anticipated with periodic passing vehicles.
- Station 4 is located on South Village Drive near Sunburst Lane to characterize how ambient noise is affected by vehicular traffic on the North Service Road and Sunrise Highway.

- Station 5 is located opposite Station Road on Hollow Street to characterize the ambient noise environment for homes that have rear yards along Station Road opposite the subject property.

Table 3-15
SUMMARY OF NOISE MONITORING DATA

Station	L_{eq}
1	54.2
2	44.9
3	58.6
4	62.9
5	65.6

Comparison of these results with the examples of typical sound levels listed in **Table 3-14** indicates that the average continuous sound levels (L_{eq}) are levels characteristic of areas ranging from suburban areas with medium-density transportation, to residential areas close to industry with light car traffic, to highway traffic at 15 meters. The levels for Station 5 were the highest of all stations due to the proximity to the travel lanes of Bellport Station Road and incidence of passing cars and trucks. Bellport Station Road is a heavily traveled roadway which provides a route between Sunrise Highway and the Long Island Expressway (via Horseblock Road). The levels at Station 2, which is located along the eastern property line are lowest, which is representative of the wooded area to the west between Bellport Station Road and the noise monitoring station, the backyards of residences to the east, and the early morning hour. Sources of background noise noted during the survey consisted mainly of vehicle traffic and natural sources.

Odors
The existing site is vacant and forested. There are no existing land uses on-site that generate odors and no natural features such as wetlands that can sometimes impact odors. The property currently fully vegetated with a pitch-pine oak forest which may impart a minor but perhaps pleasant pine odor. Although some industrial land uses exist nearby NP&V is unaware of any existing nearby land uses that currently generate objectionable odors.

Outdoor Lighting
The subject property is currently undeveloped woodland and therefore does not contain any man-made outdoor lighting. Potential light sensitive land uses near the property include residential neighborhoods and public streets and highways.

3.4.2 Potential Impacts

Noise
In comparison to its current vacant state, unavoidable short-term noise impacts will result from construction on the site. In addition, the development of the property will result in a change in the ambient noise levels with noise generated by property maintenance and vehicle movements

in the interior roadways and parking areas, and other human sources. The proposed uses are of a type that is more compatible with the residential uses to the east and west as compared to light industrial uses permitted by existing zoning. In addition, the proposed change of zone will inherently reduce levels of maximum noise generated by portions of the site under the code; since industrial uses are permitted to generate higher noise levels in comparison to the multifamily and senior housing units proposed on the site.

Construction Related Noise

Construction on the project site will involve site preparation operations (grading and clearing, excavation utilizing bulldozers, excavators, front-end loaders and similar earth moving equipment) and construction/building activities (involving trucks and use of stationary equipment/generators such as cement mixers/spreaders). Noise levels will vary based on the construction phase, but typically heavy equipment utilized during the site preparation phase results in the highest levels of noise associated with development. Sound levels during construction are intermittent as well as variable depending on the type of work being completed during various phases of the construction process.

Construction noise is inevitable in the short term and will be audible to surrounding residents; however, this impact is unavoidable and will be mitigated by limiting construction during hours proscribed by the Town of Brookhaven Code in Chapter 50. It is further noted that construction noise will occur regardless of what use is developed on the site and as a result, the change of zone itself will not change the potential for construction related noise. Construction-related activity is exempt from the maximum sound levels as long it occurs between 7 AM and 6 PM. Contractors will be required to limit the hours of construction to within the period 7 AM to 6 PM on weekdays only (no construction activity is permitted on weekends and holidays) under Chapter 50 of Town Code.

Noise Generated on Site Following Construction

It is expected that noise from vehicles on local arterials and Sunrise Highway will continue to be the dominant source of noise in the area following construction. As with any developed site, there is the potential for generation of periodic noise related to site activities following development of the site as a mixed-use development that includes a housing community, assisted living facility, self-storage and retail uses. The most common sources of intermittent noise generating activities will be related to vehicular access to the new development, vehicles driving on the interior driveways, and maintenance of landscaping on the site. These were analyzed and are discussed in the paragraphs below. A noise attenuation worksheet, which provides the values and calculations utilized for each source and station, is provided in **Appendix M**.

- Maintenance of common lawn/garden areas. The nearest common areas to be landscaped to residential property lines are located at various distances from property lines ranging from 80' for properties opposite the proposed retail on Station Road represented by Station 5 to 300' at Station 3 which generally represents properties on the east side of South Village Drive. Attenuation of sound level is provided with distance, predicted by application of the inverse square law and accounting for the intervening area of woods to remain between the new development and property lines. Use of a diesel-powered lawn mower was assumed as a worst-case scenario which operates with a higher sound level than gasoline or hybrid mowers. When adjusted source levels are combined with the lowest ambient level for morning levels based upon monitoring results, the

levels range between 59.4 dBA at Station 3 to 67.4 dBA at Station 5 which are far below the maximum of 85 dBA permitted by Town Code if the maintenance occurs between 8 AM and 8 PM on weekdays.

- Motor vehicles. The analysis includes an assessment of combined noise for a common source of noise – the use of motor vehicles within the site. For each station, a realistic number of vehicles was inputted in consideration of the site location (entrance as compared to parking area). The sound levels associated with normal motor vehicle activity is not expected to result in a noticeable change in the noise environment, as it is consistent with existing sources in the vicinity. However, the analysis performed illustrates that at the property lines, the sound levels range between 50.6 for Station 2 and 63.1 at Station 4. This analysis was not prepared for Station 5 due to the high level of vehicular traffic on Station Road which would make movement within the site indiscernible from background levels.

In summary, the only regularly occurring sources of noise which may be audible to nearby residents related to the long-term use of the property is expected to be associated with vehicular ingress and egress from the development and movement within the site. This traffic will proceed at low speeds and will not cause a perceptible increase above ambient noise, particularly due to the vehicle traffic consisting mainly of passenger cars. Other than maintenance of lawn and garden areas on the site, planned retirement communities, assisted living facilities, and the envisioned nonresidential uses to occur indoors are typically quiet in their operations, and any occurrence of loud sounds would be random and intermittent as is the case with any development. In comparison, the property is zoned for industrial use, which typically involves trucking, manufacturing, and potential for outdoor uses which could generate noise in the long term. Based on the above analysis and lack of necessity to implement noise mitigation proposed, no noise-related impacts are expected.

Odors

The Proposed Action involves the rezoning of the subject property from L-1 Industry to a mixed-use PDD consisting of multifamily residences, PRC housing, a small mini-storage warehouse, a restaurant, retail, a health club, and an NH-H zone which would contain an assisted living facility. None of the proposed land uses are expected to generate significant adverse odors. In addition, the retention of 13.11± acres of mixed oak-pitch pine forest and another 12.24 acres of the site in landscaping is anticipated to mitigate any unforeseen odor impacts.

All wastewater will be discharged to the Twelve Pines STP and will be discharged into the ground at that facility after treatment and stormwater will be properly controlled in accordance with Town requirements. While it is unknown what type of land use may be established at the site in the future if the proposed project is not developed, it is more likely that an industrial land use would generate objectionable odors with lesser natural and landscaped vegetation than the proposed project with its potential mix of land uses. Based on this information, significant odors from the subject action are not anticipated.

Outdoor Lighting

The subject property is currently undeveloped woodland and therefore does not contain any outdoor lighting. Future site development will, however, require considerable exterior lighting across the nearly 53-acre site to ensure public safety and site security on each development site,

along interior streets and walkways and within parking lots. Although nighttime outdoor lighting is a necessary component of human developments, excessive outdoor lighting or improperly located and designed lighting can result in a variety of environmental impacts, such as glare, light trespass, skyglow (a condition that affects views of the night sky), energy consumption, aesthetic and community character impacts from poor color rendering or fixture and pole selections, and effects on wildlife, particularly nocturnal species. Land uses near the Crest Town Center that may be sensitive to outdoor lighting include nearby residential land uses and the rights-of-way of public streets and highways which must be protected from glare and excessive spillover of errant light. Future uses on the subject property, especially residential uses, can also be affected by outdoor lighting on the site.

If the proposed rezoning is approved, a detailed site plan will be prepared including an outdoor lighting plan to be submitted to the Town Planning Board for review and approval. The lighting plan will be prepared by a qualified professional and will comply with the standards and requirements of the Brookhaven Town Code § 85-862, "Exterior lighting standards," and 85 Attachment 8, "Guidelines for Exterior Lighting." The Town Code and routine lighting reviews by the Planning Board and Town staff address the lighting impacts noted above through numerous standards and specifications such as requirements that:

- lighting be directed downward and/or "cut off" fixtures or other methods of light shielding be used;
- outdoor lighting be properly located and spaced relative to appropriate fixture height and yard setbacks to prevent light trespass and skyglow;
- suitable bulb types and levels of illumination (lumens) are provided based on the proposed use and site needs and that light be cast only where and as necessary to ensure a safe and secure environment; and
- energy is conserved by using automatic timers, photovoltaic sensors, energy efficient bulbs that illuminate at appropriate levels, and proper fixture heights and spacing to provide necessary lighting and minimal lighting impacts.

The applicant will work closely with the Planning Board during Site Plan review to provide a quality outdoor lighting plan that is consistent with Town lighting standards and mitigates impacts to the maximum extent practicable.

3.4.3 Mitigation

- The applicant will work closely with the Town Planning Board and submit exterior lighting plans that will conform to Brookhaven Town Code § 85-862, "Exterior lighting standards," and 85 Attachment 8, "Guidelines for Exterior Lighting."
- Odor-related impacts are not anticipated; therefore, no further mitigation is recommended.
- While no unavoidable noise impacts are anticipated, the following mitigation is inherent in the proposed action:
  - The site preparation and construction will inevitably result in elevated noise for neighboring properties. Strict adherence to time periods when construction related noise is exempt from the maximum permitted levels including in Chapter 50 (Noise) will minimize construction related noise impacts.
  - Adherence to hours for maintenance of common areas will occur between the hours of 8:00 AM and 8:00 PM on weekdays and 9:00 AM and 8:00 PM on weekends and legal holidays as

required by Chapter 50 of the Town of Brookhaven Code (Noise) with equipment generating less than 85 dBA as measured at any residential property line.

- Future residents and visitors will be required to adhere to Chapter 50 of the Town of Brookhaven Code (Noise) which will restricts sound levels generated by the occupants or visitors of the residential portions of the development to 55 dBA from 7 AM to 10 PM and to 50 dBA from 10 PM to 7 AM and to 65 dBA from 7 AM to 10 PM and to 50 dBA from 10 PM to 7 AM in future commercial areas of the property.
- The retention of 13.11± acres of mixed oak-pitch pine forest and 12.24 acres of landscaping will provide mitigation of any unforeseen noise, odor, or light impacts.

SECTION 4.0

OTHER ENVIRONMENTAL IMPACT

4.0 OTHER ENVIRONMENTAL IMPACTS

4.1 Unavoidable Adverse Environmental Impacts

The current action involves the rezoning of a 52.95-acre property from light industry (L-1) to a Mixed-Use Planned Development District (PDD) and NH-H Health Facility (NH-H) zone. This rezoning does not by itself result in immediate and direct physical impacts to the environment; however, it does put into place the standards and requirements for future development which will either adequately or inadequately protect the environment. For this reason, a Conceptual Site Plan has been prepared depicting a likely and reasonable buildout scenario under the proposed zoning so that a meaningful assessment of the Proposed Action can be performed pursuant to the standards and specifications of SEQRA. The potential adverse impacts of both the rezoning and the Conceptual Site Plan are assessed in **Sections 2.0** and **Section 3.0** of this DEIS and impact prevention and mitigation measures have been identified for the topics that are reviewed. Some impacts from the subject action and its future implementation; however, are unavoidable, and these impacts must be identified as required by SEQRA.

Based on the Conceptual Site Plan, unavoidable adverse environmental impacts that will occur as a result of the rezoning and future site development under the proposed rezoning are those that cannot be fully avoided or mitigated by applying reasonable mitigation methods and techniques. Examples of such unavoidable adverse environmental impacts are clearing and ground disturbance, building construction, street and parking lot construction, additional demand for community services, resources and essential utilities and the effects of future on-site activities that will result once the existing vacant site is developed, occupied and fully functioning. Identified unavoidable impacts that will or may still occur despite proposed impact prevention and mitigation methods, are as follows:

- Clearing, ground disturbance and grading on an estimated 41.74 acres, 15.33 acres of which will be revegetated/landscaped/restored after construction.
- Loss of wildlife habitat and loss and/or displacement of some wildlife. The rare, state and federally endangered Sandplain gerardia (*Agalinis acuta*) that has been identified on-site during an ecological inspection will be protected by maintaining the area where the plant was found in its natural condition.
- Potential dust generation during construction. Minor dust conditions would be temporary and controlled to the extent practicable by implementing proper construction management techniques including variously described dust and soil erosion and sedimentation techniques (dampening loose exposed soil, preparation of soil and erosion plans, silt fencing, etc.) and Building Department oversight during the construction process.
- Temporary increases in truck traffic and other construction related activities including noise generation during the construction period. Construction activities will be conducted in conformance with Town requirements including restricting construction activities in accordance with permissible construction timetables outlined under Chapter 50 of the Brookhaven Town Code ("Noise Control") and other noise management and site-specific measures at the discretion of the Building Department.
- Increases in vehicle trips generated on area roadways including 258 trips during the weekday AM Peak hour, 322 trips ruing the weekday PM peak hour, and 291 during the Saturday mid-day peak

hour[1]), with resulting impacts on the LOS at nearby street intersections, although the site is served by two major highways and one collector street which have considerable excess traffic capacity and nearby intersections that operate at acceptable LOS.

- There will be increases in potable domestic water demand (95,614± gpd) and irrigation water demand (24,265± gpd averaged over the course of a year) for a total water demand of 119,879± gpd; however, various conservation techniques are proposed to reduce both domestic and irrigation water, including irrigating only as and when needed; irrigating at night and by zone to reduce peak demand and evaporation; installation of water efficient irrigation systems, toilets and fixtures; retaining natural areas and reducing the total area that might otherwise have been planted with turf, and incorporating native, well-adapted or low-water demanding vegetation as part of the landscaping plan.
- There will be an increase in wastewater generation (95,614± gpd) that must be treated and ultimately recharged back into the ground; however, sewage generated at the site will be conveyed to SCSD No. 7 Twelve Pines STP for advanced/tertiary sewage treatment and disposal in accordance with the County's SPDES discharge permit. The proposed buildings will be equipped with water conserving fixtures and will comply with State and local building codes to reduce overall sewage generation and discharge to the extent practicable.
- There will be an increase in stormwater generation due to a considerable increase in impervious surfaces on the site (buildings, parking lots, internal streets, driveways and walkways); however, the applicant will design a drainage system that will comply with Town sizing requirements to capture and recharge runoff from the Town's design storm on-site and/or discharge to an existing adjacent Town-owned stormwater recharge basin, which is consistently dry based on aerial photography and may have been oversized to accommodate future growth on the subject site. If discharge to the Town-owned recharge basin is proposed, approvals will be required from the Town Planning Board during the site plan review stage, after coordination with the Town Highway Department.
- There will be an increase in domestic and commercial refuse generation that is conservatively estimated at 10,664.2 lbs./day (5.33 tons/day); however, regulations are in place in the Town to reduce solid wastes that are landfilled or incinerated by requiring recycling per Town requirements.
- There will be an increased demand for emergency services (police, fire, and associated ambulance services) not only due to the size of the development but also due to the nature of the land uses proposed which include an assisted living facility and senior housing. This increased demand will be partially offset by increased taxes generated. Service providers have been contacted and given ample opportunity to provide further input through the SEQRA process if issues or concerns are identified. These opportunities to provide input are expected to continue throughout the SEQRA, Site Plan/Special Permit and Subdivision review processes.
- The Proposed Action will impact the South Country School District based on an increased student enrollment of an estimated 17 general education students and 3 special education students (20 in total) that would likely attend public schools. This additional student enrollment will require additional resources and add to public education costs by an estimated $355,309/year. This impact, however, is addressed by the substantial tax revenues totaling $1,115,438/year that are expected to be generated by the Proposed Action for the school district and the by providing a mix of land uses with tax generating qualities that minimize the number of school children. The resulting tax revenue surplus to the school district is $760,129 per year.
- There will be increased demand for nonrenewable energy services (electricity and natural gas); however, the Study Area is served by existing electric and gas utilities and service providers are

[1] Based on ITE Trip Generation Manual, Tenth Edition; see Traffic Impact Study in **Appendix L**

expected to provide service through their rate/tariff structures as is routinely the case. In addition, the project will comply with State building and energy codes to reduce overall energy demand and energy efficient fixtures, appliances and mechanical systems will be installed.

The above list identifies unavoidable adverse environmental, many of which are minimized by the measures identified above and in **Section 2.0** and **Section 3.0**.

4.2 Irreversible and Irretrievable Commitment of Resources

This subsection is intended to identify those natural and human resources discussed in **Sections 2.0** and **3.0** that will be consumed, converted or otherwise made unavailable for future use as a result of the Proposed Action. Irretrievable and irreversible commitments of resources involve primarily the commitment of natural resources on-site, many building materials used in construction, and necessary consumption of nonrenewable energy.

The Proposed Action will result in the following irreversible and irretrievable commitment of resources:

- Natural vegetation and wildlife habitat estimated to comprise 41.74± acres and some resident wildlife will be lost due to clearing that is necessary to development the site. A total estimated 15.33-acres of the site will be revegetated/landscaped and will provide habitat for some wildlife.
- Material used for construction of the **Conceptual Site Plan**, including but not limited to: wood, asphalt, concrete, fiberglass, steel, aluminum, etc.
- Energy used in the construction, operation and maintenance of future on-site development based on the **Conceptual Site Plan**, including fossil fuels (i.e., oil and gasoline associated with site preparation and construction, electricity and natural gas).

The **Conceptual Site Plan** attempts to create a sustainable energy efficient mixed-used development with access to adjacent highways. As described throughout the DEIS, the Proposed Action embodies sustainable planning by maintaining 13.11± acres of the site in its natural condition, providing landscaping on 12.24± acres of the disturbed site, providing a development that is located along two major highways and one local collector street for efficient site access, creating a well-connected pedestrian friendly planned development, using energy efficient fixtures, appliances, and anticipated compliance with Town requirements for recycling of solid wastes and outdoor lighting and State building and energy codes. See also **Section 4.4** for additional discussion of energy use and conservation.

4.3 Growth-Inducing, Secondary and Cumulative Impacts

Growth-inducing effects cause or promote additional development, either directly from new development itself (i.e., "primary" effect) or indirectly as a result of increases in local population, market demands, new or renewed interest in an area due to growth or perceived potential for growth in that community (i.e., "secondary" effect). A primary impact may include, for example, the installation or extension of sewer infrastructure to serve a new development

which increases the potential for future development, possibly at greater development density, or an increased residential population that creates a need or opportunity for additional businesses to provide necessary goods and/or services. A secondary or "indirect" impact is one which is reasonably foreseeable, occurs at a later time or at a greater distance from the site, and is in part the result of the Proposed Action. Secondary impacts can include a wide variety of effects and may include growth inducing impacts. For example, the construction and operation of an office building may result in increased off-site demand or opportunities for office support services such as printing and copying and related business such as sales of paper supplies and other office products.

By design, the Proposed Action, i.e., rezoning and development pursuant to the Conceptual Site Plan, is intended to stimulate positive growth and investment within the area by creating new housing opportunities for the elderly and/or disabled who require some assistance in their everyday lives, seniors who are retired and may be looking to downsize homes and yards, and individuals, couples and small families looking to rent; as well as increased need for goods and services such as new retail use(s); restaurants; storage facilities; and recreational amenities (e.g., a new health club) to serve future site occupants. The new residential population that would live on the site is estimated to total approximately 594 persons and the proposed businesses should have an additional non-residential draw to the site, such as a restaurant that draws passersby along Sunrise Highway or Woodside Avenue to the site.

It is possible that the additional residential population that will occupy the site, the assisted living facility and proposed businesses may promote or "spur" additional growth in the area from persons seeking employment or goods and services. The assisted living facility, and to a lesser degree, the PRC community may benefit from or create opportunities for the establishment of additional support services and essential goods in the area, such as medical services, site maintenance or other types of businesses, as well, that provide essential goods and services to seniors and similar types of facilities and living arrangements.

The assisted living facility and any new support services in the area could potentially attract future employees to relocate to the area but residential rental opportunities will be provided on-site to offset this demand and the additional draw of residents from a 130-bed assisted living facility and 106-unit PRC that is easily accessible from area highways is not expected to be significant. Moreover, despite the potential residential, retail, restaurant, market and health club facilities that may occupy the site under the Conceptual Site Plan, there appears to be an existing need for additional population and market demand to support existing businesses in the area such as those within the nearby Bellport Outlet Center. For this reason, it is not expected that significant secondary business growth would be prompted by the increased population on the site but more likely that these new residents would help to support the existing retail businesses in the area, making them more viable. Finally, it should be noted that additional growth in the area is largely controlled by the availability of developable land, an interested landowner or developer, local economic conditions, and Town long-range land use plans and existing Town zoning which influence the type and scale of growth that can occur in the area. The periodic and anticipated development under existing zoning and the guidelines of adopted land use plans that

would result would have incremental development related effects on the environment but this development would be largely anticipated and supported based on the above factors.
The site-specific development that would result from the Proposed Action would have secondary effects. The intent of the Proposed Action is to provide a mix of land uses that are needed in the community, are appropriate to the location and are based on an overall master plan for the site that takes into consideration suitable access, circulation, land use connectivity and compatibility, a desirable quality of life for future residents, job creation, fiscal well-being, economic growth and overall area vitalization. It is anticipated that the Proposed Action would contribute to an increase in activity in the Hamlet of North Bellport from the new residents and customer base arising from the development. New employment opportunities associated with the construction and maintenance of the development, necessary assisted living products and services and proposed business uses will not only stimulate economic activity but will provide substantial tax revenues that will support the development, local taxing districts and area services and infrastructure. These new jobs would likely support the local labor pool and not require large-scale relocation of specialized labor forces or an influx of large businesses from outside the area to provide construction-related support. As a result, construction job related effects of the Proposed Action are expected to be beneficial, though temporary in duration.

Development associated with the Proposed Action will place greater demands on utilities as would any future growth in the area. Electric and natural gas services are generally available throughout the Study Area and demand is met as needed. Significant expansions of these utilities beyond what is planned for project related redevelopment are not expected, though lesser improvements such as individual service connections are expected.

Additional water demand is required to serve this development or alternatively any other development that would be proposed under the existing light industrial (L-1) zoning and any future development in the area. Additional sewage generation that must be treated by the local sewer district or more likely be discharged on-site will also result. Any future projects in the area would be subject to Site Plan/Special Permit, Subdivision, environmental, community service provider, and other reviews to ensure that significant impacts do not occur.

It is expected that the Proposed Action will create demand for, and lead to the extension of community facilities and expansion of services in the Study Area. The cost to meet this increased demand will be offset by increased property tax revenues and user fees that would be generated from site-specific developments on what are now a large undeveloped site and the developer's installation of on-site facilities and connections.

In balancing the assessment of growth and its impacts, the "triple bottom line" of responsible growth through social, economic and environmental factors is critical. The factors noted above suggest that impacts from the proposed development can be implemented in accordance with applicable standards, without resulting in significant impacts from any minor incremental growth.

4.4 Energy Use, Conservation, and Greenhouse Gas Emissions

4.4.1 Energy Use and Conservation

An energy estimate was prepared to determine the potential effect of the project on energy use and supplies. Using, multipliers provided by the City of New York's CEQR Technical Manual ("City Environmental Quality Review"), an estimate of energy use can be provided. The CEQR Technical Manual is often used as a reference in similar SEQRA energy reviews, but states that "[i]n most cases, a project does not need a detailed energy assessment, but its operational energy consumption is often calculated." Based on the CEQR Technical Manual multipliers the following estimate of energy use has been estimated:

Table 4-1
ESTIMATED CONCEPTUAL SITE PLAN ENERGY DEMAND

Proposed Use	Land Use Category	Multiplier Thousand Btu (Mbtu/sq. ft.)	Square Feet (SF)	Total Energy Demand (Mbtu)
PDD				
Retail	Commercial	216.3	33,600	7,267,680
Mini-Storage	Industrial	554.3	119,600	66,294,280
Restaurant	Commercial	216.3	4,500	973,350
Market	Commercial	216.3	15,000	3,244,500
MF Housing	Large Residential	126.7	156,000	19,765,200
PRC	Large Residential	126.7	75,000	9,502,500
PRC	Large Residential	126.7	190,000	24,073,000
Recreation Building	Institutional	250.7	2,400	601,680
Recreation Building	Institutional	250.7	2,400	601,680
Total			**598,500**	**132,323,870**
NH-H				
Assisted Living	Large Residential	126.7	117,348	**14,867,992**
TOTAL FOR ALL COMPONENTS (Mbtu/year)				***147,191,862***

Source: City of New York, 2014. CEQR City Environmental Quality Review Technical Manual. Table 15-1, Average Annual Whole Building Energy Use. Source of multipliers: New York City Department of Finance & US Department of Energy, National Renewable Energy Laboratory, 2009. Inventory of New York City Greenhouse Gas Emissions.

An increase in the consumption of energy resources, including electricity and sometimes natural gas is always expected from development, especially development on a relatively large (52.95-acre) vacant property, regardless of whether the site is proposed for residential, commercial, industrial or mixed-use purposes. Increased energy demand will clearly occur as part of the Proposed Action and Conceptual Site Development and any alternative buildout of the site under existing zoning. This increase, however, is incremental and typically small compared to total regional use, available supply and demand and commonly have negligible impacts on energy delivery. Moreover, the subject project will be built to comply with applicable land use, zoning, building, and environmental and energy standards and regulations, therefore, providing a density that is reasonable and sustainable for the site.

Electric and natural gas services are present in the area to serve the site. Future buildings will be constructed consistent with current State building codes and new building construction in New York State must conform to applicable statewide energy codes. The New York State Energy Conservation Construction Code is promulgated by the State Fire Prevention and Building Code Council pursuant to Article 11 of the New York State Energy Law. The New York Energy Code is contained in Title 19 of the New York Codes, Rules and Regulations ("NYCRR"), Part 1240, and in the publications incorporated by reference in 19 NYCRR Part 1240. As of January 1, 2015, an update to the commercial provision of the Energy Conservation Construction Code of New York State ("ECCC") is now in effect. The ECCC addresses the design and construction of energy-efficient building envelopes and the installation of energy-efficient mechanical, lighting and power systems through requirements emphasizing performance. The ECCC establishes minimum requirements for energy-efficient buildings using prescriptive and performance-related provisions.

Development in accordance with current requirements typically rely on more energy-efficient building materials (e.g., insulations, windows, weather stripping, door seals, etc.) than in the past as well as the installation of more modern mechanical systems (e.g., Energy Star or other energy conserving air conditioners, heating systems, HVAC systems, water heaters, heat pumps, etc.) is anticipated, which would minimize the amount of energy resources required compared to the less efficient materials and systems used in the past. Incorporation of such energy-conserving measures is not only required by the State of New York through its Building and Energy Conservation codes but is a sensible building construction and site occupation practice, particularly in light of the increasing costs and declining supplies of nonrenewable energy resources.

Also, as noted in **Section 3.4** of this DEIS, exterior lighting must conform to the requirements of Brookhaven Town Code § 85-862, "Exterior lighting standards," and 85 Attachment 8, "Guidelines for Exterior Lighting." These standards and regulations not only address potential visual and nuisance impacts that can sometimes be associated with outdoor lighting, including site, parking lot, and private street lighting, but also help to reduce energy demand through the use of energy efficient light bulbs, conformance to maximum illumination standards, encouraging the use of photocells, light sensors and timers to limit the period that outdoor lighting is on and various policies to prevent over-lighting, light trespass, skyglow and glare, which can occur in part by excessive lighting.

It is expected that necessary utilities will be extended on to the site to meet the anticipated demand of the project and the project team has made initial contact with the applicable service providers to request input, and ask if there are any issues or concerns these entities may have, and to begin the approval process so that they can be finalized during the site plan review stage of the project. To date, two letters have been sent to each utility but no response had been received by the time this DEIS was completed. The applicant will further coordinate with area utilities for final authorizations once the site plan is refined during the site plan review process and more precise energy estimates can be made.

Finally, it should be noted that there will be an increase in the use of nonrenewable energy resources, including fossil fuels such as gasoline and diesel fuel during the site preparation and construction phases of the proposed project to power heavy vehicles, machinery, equipment and power tools and as part of ongoing yard and building site maintenance once construction is completed. These impacts are expected to be of short duration and relatively small in the scope of overall use and demand for energy resources throughout the Town and Long Island region and are largely unavoidable impacts. Again, more recent innovations and energy conserving technologies have been built into modern vehicles and equipment to reduce energy use than comparable vehicles and equipment from decades past.

Based on the foregoing, the long-term energy resource supply and demand in the region is expected to remain virtually unaffected by the proposed project.

4.4.2 Greenhouse Gas Emissions

Energy generation and demand associated with development constructed in accordance with the Proposed Action is anticipated. Related to this is the generation of gaseous emissions from buildings to be built on-site. These emissions are a scientifically well-established contributor to global climate change through a mechanism known as "the greenhouse effect," and are termed "greenhouse gases." The following description and discussion of greenhouse gasses ("GHG") is taken from the document, "Guide to Assessing Energy Use and Greenhouse Gas Emissions in Environmental Impact Statements" **(NYSDEC, July 15, 2009)**.

> Global climate change is emerging as one of the most important environmental challenges of our time. There is scientific consensus that human activity is increasing the concentration of GHGs in the atmosphere and that this, in turn, is leading to serious climate changes. Climate change will continue to adversely affect the environment and natural resources of New York State, the nation, and the world.
>
> There are six main GHGs: carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Evaluation of the emissions of each of these GHGs could potentially be included in the scope of an EIS.
>
> Emissions of CO_2 account for an estimated 89% of the total annual GHG emissions in New York State. The overwhelming majority of these emissions - estimated at 250 million tons of CO_2 equivalent per year - result from fuel combustion. Overall, fuel combustion accounts for approximately 89% of total GHG emissions. (N_2O and CH_4 also result from fuel combustion.) Additional GHG sources include electricity distribution (SF_6); refrigerant substitutes (HFCs); the management of municipal waste, municipal wastewater, and agriculture (CH_4 & N_2O); natural gas leakage (CH_4); and others.
>
> SEQRA requires that lead agencies identify and assess adverse environmental impacts, and then mitigate or reduce such impacts to the extent they are found to be significant. Consistent with this requirement, SEQRA can be used to identify and assess climate change impacts, as well as the steps to minimize the emissions of GHGs that cause climate change. Many measures that will minimize emissions of GHGs will also advance other long-established State policy goals, such as energy

efficiency and conservation; the use of renewable energy technologies; waste reduction and recycling; and smart and sustainable economic growth. This policy is not the only state policy or initiative to promote these goals; instead, it furthers these goals by providing for consideration of energy conservation and GHG emissions within EIS reviews.

In general, it is critical that new development proposals consider designs and practices that reduce emission of greenhouse gases. Greenhouse gas emissions result from combustion of fossil fuels, including direct/indirect emissions and stationary/mobile sources. The Study Area is occupied by development that ranges in age and land use type, indicating that there is a wide range in the corresponding greenhouse gas emission characteristics including light industry, residential and commercial uses, not to mention traffic along major area highways.

The proposed zoning is designed to create a planned development consisting of relatively clean and necessary land uses that will be relatively compact and interconnected by sidewalks to facilitate walking and an internal street and driveway network. The project site also has excellent access off of two major highways and a local collector street that will be able to capture pass-by traffic as well as local activity and Suffolk County Transit Bus Route 7B has stops at the nearby intersection of Woodside Avenue and South Village Drive, the Bellport Railroad Station, Downtown Bellport, Brookhaven Memorial Hospital, South Brookhaven Health Center, Eagle Estates, the Village of Patchogue, the Patchogue Railroad Station, East Patchogue, Medford and other destinations.

The Proposed Action and Conceptual Site Plan will:

- incorporate mandatory NYS Energy Code features;
- encourage a pedestrian and bike friendly environment that may reduce some vehicular trips;
- provide easy access to local bus services;
- comply with the requested zoning with the exception of one request for NH-H building height waiver from the Planning Board;
- involve consolidation of properties to provide coordinated development than would occur under existing zoning; and
- implement a mixed-use project that promotes a jobs/housing balance.

These factors are expected to ultimately reduce inefficiencies associated with more conventional development patterns under the existing zoning and will promote sustainability that minimizes the impact of energy generation/consumption and generation of greenhouse gases.

4.5 Construction-Related Impacts

4.5.1 Existing Conditions

Construction-related activity is an inevitable part of future development actions at the 52.95-acre site as long as the land is in private ownership, regardless of whether the property is rezoned or not. This will result in clearing, grading, soil excavation, construction of foundations, buildings, parking lots, internal streets and driveways, and installation of necessary drainage, water mains,

sewer mains, and energy transmission lines (See **Chapter 5, "Alternatives,"** for an assessment of future development under existing L-1 zoning and potential impacts). Since the site is currently undisturbed and undeveloped forest as verified by on-site field inspections, and there is no available information pertaining to past on-site contamination based on reviews of NYSDEC databases to suggest that the property itself has ever been adversely affected by past development or other on-site activities, the site is considered to not be contaminated. Since the site is not being redeveloped and is considered to be free of any hazardous/contamination conditions, no large-scale cleanup of the subject properties are necessary.

The subject property has frontage along Sunrise Highway's North Service Road (SR 27), Woodside Avenue (CR 99), and Station Road for efficient and convenient access. As such, construction traffic, including large trucks, will utilize these roads to access the site and therefore largely avoid residential neighborhoods. These streets and highways also have considerable capacity for additional traffic and significant adverse traffic impacts are not expected based on projections and proposed mitigations.

4.5.2 Impacts

Construction will occur with or without the Proposed Action; however, it is recognized that the zoning amendments are being advanced to allow for viable development of the site to stimulate beneficial economic growth on a large and undeveloped industrially zoned property. As a result of the adoption of the proposed zoning amendments, the site can be developed for a variety of productive land uses.

Site preparation and construction is a short-term, temporary impact; however, given the size of the proposed development and the timeframe it will take for completion, increased activity proximate to the site in the form of clearing, soil disturbance, dust generation, erosion, increased construction traffic, and daytime noise can be expected. These factors would occur whether the site was developed for industrial purposes or as currently proposed and can be managed through Town laws and the standards identified by this DEIS, as will be documented in a final SEQRA Findings Statement, the final Site Plan and Subdivision requirements, as well as Engineering and Building Department oversight.

Soil on-site is clean, deep, well-drained, and have few constraints for development. Topography is generally flat to gently sloping with only one small area of gentle-to-moderately steep slopes. The site is also quite large, allowing for soil that is excavated for subsurface improvements (foundations, drainage, utilities, etc.) to be easily reincorporated back into the site by backfilling and integrative grading, without the need or significant need for the importation or exportation of soil. Use of required drainage, erosion, sedimentation and dust controls, including installation of silt fencing, drain inlet controls, a suitable and stable construction access, and wetting bare soil as needed to control dust, staging all construction and worker vehicles on-site, implementing standard construction best management practices, and complying with Town permissible construction hours pursuant to Chapter 50 of the Town Code to control noise will reduce potential impacts from site preparation and on-site construction activities.

Sediment and erosion control plans will be prepared during site plan review if the Town determines that a New York State Department of Environmental Conservation ("NYSDEC") State Pollutant Discharge Elimination System ("SPDES") General Permit for Stormwater Discharges from Construction Activity (GP 0-15-002) and Stormwater Pollution Prevention Plan (SWPPP) are required. If required, the SPDES materials and SWPPP will be prepared in accordance with State and Town requirements and will be prepared to meet the satisfaction of the Town Engineer.

4.5.3 Mitigation

Site preparation and construction activity mitigation identified by this DEIS includes the following actions:

- Clearing and rough grading of the site will be conducted in accordance with the approved Site Plan and under the supervision of the Town Building Department.
- A stabilized construction entrance will be installed to reduce the tracking of soil on to public streets.
- An Erosion and Sediment Control Plan will be prepared and implemented.
- Erosion controls including work perimeter silt fencing and drainage inlet protection around all grated drainage inlets will be installed to prevent sediments from entering and settling within any subsurface drainage structures. Areas to remain undisturbed will be identified in the field to avoid encroachment.
- Dust control in the form of soil wetting will be conducted if needed and onsite construction vehicle speeds will be kept to a minimum to prevent the unnecessary raising of dust.
- Reseeding and landscaping will be implemented as soon as possible after ground disturbance to stabilize exposed soils.
- Drainage infrastructure will be installed to meet the requirements of the Town and will be designed to the satisfaction of the Planning Board and Town Engineer.
- A General (stormwater) Permit and SWPPP will be prepared for the project if required by the Town to ensure proper control of stormwater runoff.
- Material staging areas and designated stock pile locations will be located on-site and will be protected.
- Construction activities will be restricted to permissible hours of the day and days of the week as prescribed by Chapter 50, "Noise Control," of the Town Code

SECTION 5.0

ALTERNATIVES

5.0 ALTERNATIVES

5.1 Introduction

SEQRA requires every DEIS to consider reasonable alternatives to the proposed project. This phase of environmental review provides the context and framework for identifying, describing, comparing and contrasting feasible project alternatives. Investigation of alternatives is an integral part of the land use planning and impact identification and mitigation processes as they provide for a broader understanding and evaluation of issues and create a foundation for more informed decision-making by the Lead Agency and other involved agencies. Alternatives may include changes to a project's location, size, scale, design, layout, density, intensity, alignment, orientation, technologies, methodologies, timeframes, phasing, or other modifications that are reasonable considering the objectives and capabilities of the project sponsor.

SEQRA also requires the DEIS to contain a comparative assessment of what it refers to as the "No Action Alternative." The No Action alternative provides a basis from which to identify, characterize and assess future conditions and possible impacts and benefits that are likely to result in the reasonably foreseeable future in the absence of any new projects, land use(s), site disturbances, and construction or other activities. SEQRA requires the discussions and analyses of project alternatives to be conducted at a level of detail sufficient to allow for the comparison of impacts and project mitigation techniques by the Lead Agency and all involved decision-making entities as defined by SEQRA.

The alternatives considered for the Subject Action are as follows:

Alternative 1: ("No Action Alternative")

Alternative 1 is the "No Action Alternative" which is required by SEQRA for DEISs. The No Action Alternative is intended to identify the conditions that currently exist on a site and that may be expected in the foreseeable future if no action is undertaken. The No Action Alternative provides the groundwork for an assessment of anticipated future impacts and benefits under current conditions and a foundation for comparing and contrasting a Proposed Action with *status quo* conditions.

Since the subject property currently consists of undeveloped and unused woodlands, it is assumed for the purposes of this analysis that the property will remain in its current natural condition with no future development or on-site activities.

Alternative 2: ("Buildout Under Existing L-1 Zoning" aka "As-of-Right Alternative")

Alternative 2 provides an assessment of a reasonable as-of-right buildout of the subject site under its existing light industrial (L-1) zoning. This alternative assumes a site development with a total yield of 501,080 SF of mixed L-1 uses, including light industry, warehouse/storage, associated industrial office space, a medical office building, other non-medical/non-industrial office space, and a bank.

5.2 Alternative 1: No Action

The No Action alternative assumes that the 52.95-acre site remains vacant, undisturbed and in its existing natural undeveloped condition. There would be no new clearing, ground or site disturbance, no construction, and no other activities on the property. There would be no modifications or impacts to on-site or adjacent natural resources, and no changes, positive or negative, to the community. Leaving the site in its current, mostly natural condition, has various environmental (slopes, soils, wetlands, surface water, groundwater), ecological (wildlife, wildlife habitat), and traffic benefits and there would be no additional demand for potable water, energy, wastewater treatment or solid waste pickup and disposal. The vacant property under the No Action Alternative would also not generate any school-age children to be educated in public schools and would not generate additional stormwater runoff that would have to be captured and recharged into the ground. The land, however, would remain privately owned and undeveloped despite its intended use as one or more L-1 industrial land uses as deemed appropriate by the Town, its official Zoning Map and the standards and requirements of the Town Zoning Code.

Abandonment of any potential use of the site would also prevent the 52.95-acre property from being put to any productive use, causing it to continue as a financial drain on the landowners who pay property taxes but would not be able to recover their investment-backed expectations from the purchase of the property as permitted by zoning. Foregoing future development of the site under current zoning would preclude the possible use of the site to stimulate growth, financial investment, economic development, increased property tax revenues that would help support community services and investments in infrastructure and new construction and L-1 employment opportunities. The No Action Alternative also would eliminate any possibility for a future rezoning of the site to a mixed-use PDD and NH-H assisted living facility; thereby, preventing the establishment of needed assisted living services and facilities for the elderly and disabled, new housing for senior citizens, apartments for young adults, couples and small families, new opportunities for affordable housing, and diverse job creation. Benefits such as an increased customer base for other nearby commercial land uses (e.g., Bellport Outlet Center) would also be lost.

5.2.1 No Action Summary

Table 5-1 provides a quantitative comparison of the No Action Alternative (Alternative 1) with the Proposed Project and summarizes the potential impacts and benefits of this alternative.

Although there are numerous environmental benefits from the No Action Alternative, this scenario is not in keeping with the goals of the project sponsor, is impractical, untenable, and unreasonable for privately owned land. Foregoing future development of the site also would result in the loss of various community benefits such as new and diverse housing opportunities including affordable housing, employment and fiscal and economic benefits that the Town has found to be needed in the North Bellport community. Since this property is quite large and is currently undeveloped, it is anticipated that continued pressure for future development would occur, regardless of its ownership and zoning, until such time as the property was fully developed.

Table 5-1
SITE AND PROJECT CHARACTERISTICS
Existing Conditions vs. Conditions under the No Action Alternative

Parameter	Existing Conditions	Proposed Project
Land Use	Vacant/Wooded	Assisted Living, PRC, MF Apartments & Mixed Commercial
Wastewater Treatment System	None	Suffolk County STP
Site Coverages (acres)**:**	---	---
Buildings	0	9.55
Parking Lots, Internal Streets, Driveways, Walkways	0	16.85
Forest or Naturally Vegetated	52.34	11.21
Unvegetated/Cleared/Bare Ground	0.61	0
Landscaping and Turf	0	15.33
Total	52.95	52.95
Water Resources:	---	---
Domestic Water Use (gpd; annual, average)(1)	0	95,614
Irrigation, annualized (gpd)(2)	0	24,265
Total Water Use (gpd)	0	119,879
Sanitary Waste Generation:	---	---
Total Sanitary Waste Generation(1)	0	95,614
Vehicle Trips Generated (vph)**:**	---	---
Weekday AM Peak Hour	0	258(3)
Weekday PM Peak Hour	0	322(3)
Saturday Midday Peak Hour	0	291(3)
Miscellaneous:	---	---
Affordable or Workforce Dwelling Units (%) (units)	0	10%, 16 MF+11 PRC = 27
Total Residents (capita)	0	594(4)
School Age Children/Children to Attend Public School	0	20(4)
Employees (FTE) (Construction/Post Construction)	0	149/191
Total Taxes ($/year)	$84,572	$1,595,131(4)
School Taxes ($/year)	$59,363	$1,119,662(4)
Parking Required (spaces)	0	1,018
Parking Provided (spaces)	0	1,104
Solid Waste (Garbage) Generation (lbs./day)	0	10,664.2(5)

gpd - gallons per day; vph-vehicles per hour
(1) Conservative estimate based on SCDHS design rates;
(2) Assumes all landscaped areas are irrigated at 24.0 inches/year (one inch per week over irrigation season averaged as daily flow over course of one year)
(3) ITE Trip Generation Manual, Tenth Edition; adjusted for passby trips; See Traffic Impact Study provided in **Appendix L**
(4) See **Section 3.2** and **Appendix B** for more detail.
(5) Assumes 4 lbs./day/resident for apartments & PRC units; 5 lbs./day/bed for nursing homes; 0.13 lbs./day/SF of retail space; 0.09 lbs./day/SF for restaurant space; 0.012 lbs./SF/day for industry & storage (Salvato, 2009).

In consideration of the above factors, it may be concluded that the No Action Alternative would not be preferable to the property owner as the long-term costs of property maintenance and

continued payment of property taxes, is not sustainable when there is no use or economic return on the land, and is considered an unreasonable and impractical alternative, based on the project sponsor's objectives and capabilities.

5.3 Alternative 2: Buildout under Existing Zoning (As-of-Right L-1 Alternative)

5.3.1 Development under Existing (L-1) Zoning

A buildout analysis of the subject parcel was previously conducted by RMS Engineering and VHB consultants in 2010; the information provided in that analysis provides a suitable basis for the present evaluation of the potential impacts and benefits of fully developing the 52.95-acre property under its current light industrial (L-1) zoning. The Alternative 2 As-of-Right development examined herein assumes a similar scenario to that of the 2010 analysis, which, based on NP&V's review, is consistent with current land use and dimensional zoning standards of the Town's L-1 Industrial zoning district as set forth in §85-553 and applicable land development standards set forth under §85-843 of the Brookhaven Town Code. Alternative 2 would also be consistent with Town and County long-range land use plans which call for industrial uses to be established on the site. Based on the 2010 buildout analysis, the as-of-right plan would yield a total of 501,080 SF of mixed L-1 uses, including light industry, warehouse/storage, associated industrial office space, a medical office building, other non-medical/non-industrial office space, and a bank.

A summary of the land uses considered under the As-of-Right/Alternative 2 is provided below:

Light Industry:	207,300 SF
Warehousing:	18,000 SF
Medical Office:	130,280 SF
Office Space:	138,000 SF
Bank:	7,500 SF
Total:	**501,080 SF**

The industrial component of the As-of-Right/Alternative 2 would be constructed on the northerly half of the property, opposite the existing industrial development located on the north side of Woodside Avenue; while office/warehouse, medical and non-medical office spaces, and the bank would be located on the southerly half of the site, opposite the Bellport Outlet Center/Home Depot commercial complex. The As-of-Right L-1 industrial development would include a total of 11 single-story buildings ranging in size from 7,600 SF to 33,000 SF. The three-story office/warehouse buildings that are part of this scenario would have a total of 156,000 SF of gross floor area (GFA) and the three-story stand-alone medical office building would contain 117,000 SF of GFA. The bank would have 7,500 SF of gross floor space and would be one story. Drive-through bank services would not be proposed. A separate two-story 13,280 SF office building would also be provided.

Total combined space by broad land use categories, therefore, would be 225,300 SF of industry and warehouse uses, 268,280 SF of office uses, and 7,500 SF of bank space. PRC, rental apartments affordable/workforce housing and assisted living facilities would not be provided

under this alternative. Since the as-of-right plan would be consistent with L-1 zoning requirements, the redemption of PBCs for density bonuses and land preservation and payment into the Joseph Macchia Fund was not contemplated for this alternative. This is an obvious change from the proposed project as this benefit would not be provided. Vehicular access to the site would include one access from Woodside Avenue, two from the North Service Road of Sunrise Highway, and one from Bellport Station Road (with direct access to the bank and small office building). The following sections outline the comparison of development scenarios and potential impacts.

5.3.2 Proposed Zoning and Development in Accordance with the Conceptual Site Plan

As previously discussed, the proposed project involves the rezoning and development of the subject property with a 48.46-acre mixed-use PDD and a 4.49-acre NH-H assisted living facility. The PDD portion of the development as proposed will contain:

- a multi-family ("MF") residential development consisting of 160 dwelling units, including 20 studio apartments at 750 SF, 80 one-bedroom apartments at 900 SF, and 60 two-bedroom units at 1,150 SF;
- a planned retirement community ("PRC") consisting of a total of 106 1,950 SF two-bedroom dwelling units with attached private garages;
- 33,600 SF of retail health club space;
- a 4,500 SF restaurant containing 180 seats including 30 bar stools;
- a 15,000 SF market; and
- a two-story mini-storage warehouse facility having a total gross floor area of 119,600 SF.

The proposed 4.49-acre NH-H zone is the seventh use. This zone will be developed with a 3.5-story 130-bed assisted living facility with a 39,116 SF± building footprint.

The north end of the property (38.69 acres or 73.1 percent of the site) will be developed with the residential uses, including the assisted living facility, PRC, and multifamily housing; while, 26.9 percent of the site (14.26 acres) at the south end of the property will be developed with the mixed commercial uses including mini-storage warehouse, restaurant, retail space and convenience market. The PRC and MF components of the project, which are located within a Town of Brookhaven "Primary Zone," will receive density bonuses per Code through the purchase and redemption of a total of 24.35 PBCs and a a payment of $125,887.50 will be made to the Macchia Fund to address density associated with the commercial component of the proposed action.

5.4 Comparison of the Proposed Action versus Alternative 2 (As-of-Right/L-1)

Table 5-2 compares anticipated conditions under the Proposed Action versus an as-of-right development alternative that is consistent with existing L-1 zoning requirements.

5.4.1 Topography and Soils

It is impossible to develop a property without disturbing soils and site topography. Nevertheless, an analysis of site conditions revealed no significant soil or topographic limitations at the property and no significant soil and topographic impacts that could not be suitably mitigated by incorporating the various methods and techniques identified in **Section 2.0** (i.e., dust control, erosion, sedimentation, slope stabilization, and stormwater management). This finding applies to both the Proposed Action and future development under existing zoning (i.e., the As-of-Right Alternative). The primary differences between the two development scenarios, however, is that the As-of-Right Alternative would require more impervious surface area (35.54 acres or 67.1 percent of the site versus 26.4 acres or 49.86 percent of the site under the Proposed Action), due primarily to the significantly greater demand and requirement for parking under the As-of-Right scenario. This additional impervious surface area would not only require additional site disturbance, but would also generate more stormwater runoff that would have to be managed. When factoring in the total site disturbance, which includes areas to be cleared but later landscaped (i.e., 15.33 acres of landscaping under the Proposed Action versus just 5.131 acres of landscaping under the As-of-Right scenario), the total clearing and disturbance of the site would be 40.671 acres under the As-of-Right Alternative and 41.74 acres before landscaping under the Proposed Action. Therefore, the total area of soil and site topography that would be disturbed under the As-of-Right Alternative would be roughly one acre less than the Proposed Action, therefore resulting in one acre less disturbance. Finally, it should be noted that the Proposed Action requires that 24.35 PBCs be acquired and a contribution of $125,887.50 be paid to the Macchia Fund which would forever preserve a considerable area of critically environmentally sensitive land located off-site and prevent future disturbances of these areas, while the As-of-Right Alternative includes no PBCs or Macchia Fund payments.

5.4.2 Water Resources

<u>Water and Sewer</u>

There are no natural surface waters or wetlands on or adjacent to the subject property, therefore, significant impacts on surface waters or wetlands from the Proposed Action or the As-of-Right/ Alternative 2 would not be expected with proper mitigation. As shown in **Table 5-2**, the as-of-right L-1 development would result in a smaller increase in total water demand than the Proposed Action (119,879 gpd compared to 39,923 gpd as-of-right) as well as a smaller increase in sanitary wastewater flow (95,614 gpd compared to 30,770 gpd); however, this does not factor in any potentially large volumes of industrial processing water that may be required for a L-1 manufacturing use, special permit, or other water intensive industrial operations. In addition, wastewater from industrial use would be discharge on-site and would not be treated, as it would be with the proposed project.

Table 5-2
COMPARISON OF THE PROPOSED ACTION AND ALTERNATIVE 2

Parameter	Proposed Project	As-of-Right Project
Land Use	Assisted Living, PRC Apartments, Restaurant, Commercial, Mini-Storage	Industry, Warehouse, Medical Office, Other Office & Bank
Wastewater Treatment System	SCSD No. 7	SCSD No. 7
Site Coverages (acres)**:**	---	---
Buildings	9.55	6.26
Parking Lots, Internal Streets, Driveways, Walkways	16.85	29.28
Wooded or Naturally Vegetated	11.21	12.28
Landscaping and Turf	15.33	5.13
Total	52.95	52.95
Total Impervious Coverage	26.4	35.54
Water Resources:	---	---
Domestic Water Use (gpd; annual, average)	95,614(1)	30,770(1)
Irrigation, annualized (gpd)	24,265(2)	9,153(3)
Total Water Use (gpd)	119,879	39,923
Sanitary Waste Generation:	---	---
Total Sanitary Waste Generated (gpd)	95,614(1)	30,770
Vehicle Trips Generated:	---	---
Weekday AM Peak Hour (vph)	258(4)	810
Weekday PM Peak Hour (vph)	322(4)	961
Saturday Midday Peak Hour (vph)	291(4)	706
Fiscal Considerations:	---	---
Total Tax Revenue (annually)	$1,595,131(5)	$1,002,160(6)
School Tax Revenue (annually)	$1,119,662(5)	$703,416(7)
School Age Children (attending public school)	20(5)	0
Cost of Education (annually, proposed project only)	$355,309(5)	0
School Tax Surplus (annually)	$760,129(5)	$703,416(7)
Miscellaneous:		---
Affordable/Workforce Dwelling Units	10%, 16 MF+11 PRC = 27	0
Total Residents (capita)	594(5)	0
Parking Required (spaces)	1,018	2,014
Parking Provided (spaces)	1,110	2,427(8)
Solid Waste (Garbage) Generation	10,664.2(9)	5,461.4(9)

gpd- gallons per day; vph-vehicles per hour
(1) Conservative estimate based on SCDHS rates.
(2) Assumes all landscaped areas are irrigated at 24.0 inches/year (one inch per week over irrigation season).
(3) The 2010 analysis used a different irrigation season to estimate irrigation demand than NP&V did for the proposed development; therefore, in order to ensure a fair and comparable assessment, NP&V applied the same factors to the as-of-right use. This adjustment increased the original irrigation projection from an average of 5,153 gpd to an average of 9,153 gpd over the course of a year.
(4) ITE Trip Generation Manual, Tenth Edition; adjusted for passby trips; See Traffic Impact Study provided in **Appendix L**
(5) See **Section 3.2** and **Appendix B** for more detail on derivation of these projections.
(6) Based on an average of $2.00/SF of industrial tax revenue.
(7) Based on 70.19% apportioned to the school district.
(8) Includes landbanked spaces
(9) Assumes 4 lbs./day/resident for apartments & PRC units; 5 lbs./day/bed for nursing homes; 0.13 lbs./day/SF of retail space; 0.09 lbs./day/SF for restaurant space; 0.01 lbs./day/SF for office space; 0.01 lbs./day/SF for medical office space; 0.012 lbs./day/SF for industrial space/storage **(Salvato, 2009)**.

The subject property is located within SCDHS Groundwater Management Zone (GMZ) VI and Article 6 of the Suffolk County Sanitary Code requires that multifamily developments within GMZ VI not exceed a total on-site wastewater density load of 300 gpd/40,000 SF based on 75 percent of the total site acreage and that commercial/industrial uses do not exceed a discharge rate of 300 gpd/acre (43,560 SF), unless a community sewerage system method of disposal is provided and/or transferred wastewater credits are acquired and redeemed in accordance with SCDHS standards. For these reasons, the As-of-Right Alternative would not be required to connect to an STP (off-site or construct an STP on-site). It is expected that industrial use would connection to SCWA for water supply. Both scenarios would require approvals from the SCWA and SCDPW, SCSA, etc. for applicable connections.

Stormwater

In regard to stormwater, the As-of-Right/Alternative 2 would be expected to generate considerably more stormwater runoff (10.244± million gallons per year) on new pervious surfaces compared to the Proposed Action, mainly due to the large parking lots required under the As-of-Right Alternative. This additional runoff would be generated by as much as 7.94 acres of additional impervious surfaces projected under the As-of-Right Alternative (35.54 acres compared to 27.6 acres) which would have to be captured and recharged on-site or in the adjacent stormwater recharge basin to the southeast of the site.[1] If discharge to the Town-owned recharge basin is proposed, approvals will be required from the Town Planning Board during the site plan review stage, after coordination with the Town Highway Department. Both development scenarios would be required to provide appropriate drainage facilities on-site in accordance with applicable State and Town standards and specifications or would discharge to the adjacent stormwater recharge basin on the southeast side of the property.

Another issue is possible nitrogen loading from the fertilization of future on-site landscaping. Under the Proposed Action, a total of 15.33 acres of landscaping will be provided to landscape the site once construction is completed compared to 5.13 acres under the As-of-Right Alternative. The differences in potential nitrogen loading from fertilization of landscaping, however, can and would be significantly mitigated by planting native or well-adapted vegetation that requires little or no fertilization. Water required to irrigate landscaping can also be substantially reduced by planting species that are native to the area or well-adapted to area conditions, installing modern irrigation systems that conserve water, and watering landscaping at appropriate times in suitable volumes.

Moreover, the Applicant, under the Proposed Action, will acquire a total of 24.35 PBCs to offset the requested development density, additional water demand and increased wastewater flow which will be instrumental in preserving and protecting the resource rich/environmentally sensitive Central Pine Barrens; particularly, its surfaces waters, wetlands, and groundwater, not to mention its various ecological resources, and a Macchia Fund contribution of $125,887.50 will be provided. The As-of-Right/Alternative 2 would not require that PBCs be purchased or that a donation be made to the Macchia Fund.

Finally, it should be noted that the property is currently zoned L-1 (Industrial) which permits or allows, as-of-right, a variety of relatively intensive land uses such as manufacturing, truck

[1] Assumes 46.1 inches of rainfall per year consistent with the original As-of-Right projection

terminals, commercial laundries, bus storage yards, heavy construction vehicle dealerships, airports, etc., some of which could involve the use, storage and handling of hazardous materials.

5.4.3 Ecology

As noted above, the Proposed Action would require that 26.4± acres or 49.86 percent of the site be cleared for buildings, parking lots, internal streets, driveways, and sidewalks leaving 11.21± acres of natural forest habitat and 15.33± acres for landscaping; while the As-of-Right/Alternative 2 requires 35.54± acres or 67.1 percent of the site be cleared for buildings, parking lots streets, roads and sidewalks leaving 12.28± acres of forest and allowing for 5.13± acres of landscaping. Based on these data, the As-of-Right scenario would eliminate more native wildlife habitat (1.07± of an acre less) than the Proposed Action but would also have less landscaping (10.2± fewer acres) and more impervious surface (9.14± additional acres). The biggest difference, however, is that the Proposed Action includes the preservation of environmentally sensitive land within the Central Pine Barrens through the purchase and redemption of 24.35 PBCs and a contribution of $125,887.50 to the Joseph Macchia open space fund for the purchase of open space in conformance with Town's incentive zoning requirements (NYS Town Law 267-b) under the PDD. This mitigation technique will not only protect surface water, wetland and groundwater resources, but also forever preserves and protects critically important environmental resources through the filing of conservation easements that prohibit future development and run with the land.

5.4.4 Parks, Open Space and Recreational Facilities

The Proposed Action includes MF and PRC residential components that will be occupied by an estimated 594 persons. These residents will place additional demand no area parks, open spaces and other recreational facilities, thereby placing greater strain on these resources and facilities. Conversely, the commercial/industrial uses associated with the As-of-Right Alternative would not create additional demand for parks, open space and recreational facilities.

Despite the increased demand for parks, open spaces and recreational facilities under the Proposed Action, the **Conceptual Site Plan** contains significant open space and recreational facilities that will be dedicated for use by future site inhabitants to offset this demand. These resources and facilities include two 2,400± SF recreational buildings, two swimming pools and a total of 168,000± SF of recreational open space for future residents. Moreover, the Proposed Action will also provide a network of internal sidewalks for residents to use to take walks or access on-site and off-site businesses and facilities. Finally, as previously noted, the Proposed Action involves the purchase and redemption of an estimated 24.35 PBCs and a $125,887.50 donation to the Joseph Macchia Environmental Preservation Capital Reserve Fund to preserve public open space in the Central Pine Barrens. These preserved lands will likely be open to the general public for passive recreational uses such as hiking, sight-seeing and the enjoyment of nature and would further address the demand created by the development.

5.4.5 Land Use, Zoning and Plans

Land Use

As-of-Right/Alternative 2 L-1 land uses would be consistent with the future industrial land use envisioned for the property by the 1996 Draft Comprehensive Land Use Plan's "Future Land Use" map, the 2014 Greater Bellport Land Use Plan, the Town's Official Zoning Map, and the County's 2009 Sunrise Highway Corridor Study. The L-1 zoning of the site, however, has been unable to attract industrial development at the site since its zoning, leaving the entire 52.95-acre property as undeveloped vacant woodland. Furthermore, past planning initiatives have indicated a community preference for alternative uses on the site. In fact, previous interest in developing the site involved consideration of rezoning of the southernmost 28 acres of the site to J-Business-2.

Constructing as-of-right light industrial uses, a warehouse, offices and a bank on the subject property would also preclude the possibility of providing a PRC and assisted living facilities that are needed to serve the large Baby-Boomer (senior) demographic in the area, rental apartments, including a mix of unit sizes that will help to diversify the Town's housing stock, and a total of 27 new "affordable" or "workforce" housing units (16 MF apartments and 11 PRC units) to address housing affordability issues in the area.

Finally, a total of 20 school-age children would be expected to attend public schools from the Proposed Action, which would have an effect on these schools; while the As-of-Right Alternative would add no new enrollment in the district. Despite this increased school enrollment, the analyses provided in the Fiscal and Economic Impact Summary (**Appendix B**) which is summarized further in **Table 3-5** of **Section 3.2.2** indicates that there will be an estimated surplus of $760,129 in tax revenue to more than cover the expense of educating the additional children to attend public schools projected under the Proposed Action. As outlined in **Table 5-2**, in comparison to the Proposed Action, industrial use of the property at full buildout would generate less total tax revenue and comparable school tax revenue and there appears to be little demand for a full industrial development at this location as the property has remained vacant under L-1 zoning for many years. As a result, tax revenue benefits to taxing jurisdictions have yet to come to full fruition under existing zoning.

Zoning

The proposed project requires a Change of Zone for the subject site from L-1 to PDD and NH-H. However, as discussed in **Section 3.1.2**, a change in the local zoning pattern would not result in a significant adverse environmental impact to the area, as the residential component of the project would be situated on the north side of the property adjacent to existing residential uses to the east, west, and northwest, and the proposed commercial uses on the south side of the property would be compatible with commercial development to the southwest and Sunrise Highway to the south. In addition, the existing industrial development to the north is separated from the subject property by the broad Woodside Avenue corridor as well as existing vegetated buffers to the north and proposed 50-foot deep vegetated buffers on the subject site. Conversely, future industrial land uses at the north end of the site under the As-of-Right/Alternative 2 would be adjacent to existing residential developments to the east and west, although buffering could and likely would be provided.

Table 5-3 shows a comparison of the setbacks, floor area ratio, building height and other zoning and spatial conditions upon development of the proposed project and as-of-right development scenario.

Table 5-3
COMPARISON OF PROPOSED AND AS-OF-RIGHT DIMENSIONAL STANDARDS

Dimension	Proposed Action[1]	As-of-Right Project
---	***Planned Development District***	***L-Industrial-1***
Lot Area (acres)	48.46	52.88
Minimum lot width (feet)	472	100/150
Maximum Floor Area Ratio (%)	24.54	21.8
Minimum Front Yard Depth (feet)	50	100
Minimum Side Yard Depth (feet)	50	50
Minimum Rear Yard Depth (feet)	50	50
Maximum Building Height (feet/stories)	50/3.5	50/3
Minimum Number of Affordable DUs (%/units)	10%/27	0
Number of Parking Spaces	1,104	2,427[3]
---	***Health Facility District***	---
Lot Area (acres)	4.49	---
Minimum Road Frontage (feet)	426[2]	---
Maximum Building Area (Footprint) (%)	20[2]	---
Front Yard Setback (feet)	140	---
Side Yard Setback (feet)	65.37/129.58[3]	---
Rear Yard Setback (feet)	116.97	---
Maximum Building Height (feet/stories)	50/3.5[2]	---
Number of Parking Spaces	75	---
Total Parking	1,179	2,427[3]

1) Anticipated, based on the Conceptual Site Plan.
2) There is no minimum lot width requirement in the L-1 zone, only a road frontage requirement. Since the previous (2010) buildout analysis did not address lot width or road frontage, the current analysis assumes the as-of-right development conforms to the L-1's minimum road frontage requirement of 100 feet and 150 feet for the bank with drive-thru facilities.
3) Includes land-banked parking spaces.

Land Use Plans

As previously discussed, the 1996 Draft Town Comprehensive Land Use Plan recommends that the subject property be used for industrial purposes, but also allows for and promotes some redevelopment of industrial zoned land with PDDs. Previous studies and environmental analyses also found that alternative (non-industrial) development at the site would be preferable to industrial development. Under the As-of-Right/Alternative 2 scenario, an opportunity may exist for an industrial development of the property to create more jobs, depending on specific land uses; however, there has been no real interest by developers or industries to construct such facilities on the site. The As-of-Right/Alternative 2 scenario would create jobs associated with industry, warehousing, medical and professional offices and banking, while the Proposed Action would create jobs in nursing and assisted living care, retail, convenience, warehousing and restaurant services. In regard to housing, development of the site under the proposed

development scenario, with market rate and affordable PRC and MF housing units, and construction of assisted living facilities is much needed and would not occur under the As-of-Right Alternative.

5.4.6 Transportation/Traffic

Vehicular access to the site under the As-of-Right industrial development (Alternative 2) would include: one from Woodside Avenue, which would likely be a right in only as required for the Proposed Action, two from the North Service Road (one access/egress and one exit only), one from Bellport Station Road, and two direct accesses, one to the bank and one to the smaller office building for a total of six. Under the Proposed Action, access would be better controlled and consolidated with two from North Service road (one access/egress and one exit only), one from Station Road one right in only from Woodside Avenue and one from South Village Drive for a total of four.

In regard to vehicle trip generation, as indicated in **Table 5-2**, the As-of-Right Alternative would generate more traffic including 810 trips during the AM weekday peak, 961 trips during the PM weekday peak, and 706 trips during the Saturday midday peak. This compares to 258 during the AM weekday peak, 322 during the PM weekday peak, and 291, during the Saturday midday peak under the Proposed Action. Although the streets and highways in the area have capacity to handle more traffic, the as-of-right development would have a projected 3.14 times the trips during the AM weekday peak, 2.98 times the trips during the PM weekday peak, and 2.43 times the trips during the Saturday midday peak. It would also be expected that a greater proportion of the trips would be large trucks under the as-of-right development to serve the industry/ manufacturing and warehousing components of this alternative. This would place a greater strain on adjoining streets and intersections when compared to the proposed project.

In addition to the increased number of vehicle trips generated under the As-of-Right Alternative, a considerable amount of on-site parking would also be needed. As indicated in **Table 5-2** the As-of-Right Alternative would provide an estimated 2,427 parking spaces, including some land-banked spaces (not to mention more truck loading spaces). This would be nearly 2.2 times the parking provided under the Proposed Action.

5.5 Loss of Industrial-Zoned Land

The rezoning of the subject site with a mixed-use PDD zone and NH-H zone would result in the loss of 52.95 acres of industrial zoned land within the Town that might otherwise someday be fully developed with industrial land uses. Nevertheless, as previously noted, the Draft 1996 Comprehensive Land Use Plan found that there was a downward trend in demand for industrial space, and by 1987, the region had lost 24 percent of its manufacturing jobs and the vacancy rate for industrial space had doubled in Suffolk County between 1988 and 1996. This trend toward declining demand for industrial and manufacturing space on eastern Long Island and the region unfortunately continued, and continues today, and along with the prevalence of vacant industrial land and vacant or abandoned industrial buildings in the area, suggests that the current supply of

industrially-zoned land in the Town may be in excess of demand and that which can be practicably utilized. A case in point is the subject 52.95-acre industrial zoned property, which despite its large size, L-1 zoning, location along two major highways, and past planning recommendations that call for industrial land uses at the site, has remained undeveloped woodlands. This may also be due, in part, to a trend toward industries locating or relocating to other areas of the Town or region where economic development and/or empire zones are present and other industries are located, such as Yaphank. The Sills Road/Station Road area of Yaphank specifically provides economic incentives and improved access and has attracted a more stable industrial complex.

The 2010 Expanded Environmental Assessment for the previous development proposal for the subject property, as well as the 2007 study titled "Evaluation of Industrially Zoned Land for Change of Zone Application for Kohl's Department Store" and the 2009 Greater Bellport Sustainable Community Plan, also provided input or analyses regarding the impacts from the loss of industrially zoned land in the Town and demand for uses in the area. The conclusions of these earlier investigations reflected similar conclusions, noting that there has been difficulty attracting industrial tenants and that the preference of the community is to attract an alternative type of development.

In contrast to declining demand for industries or location/relocation in other areas, demand for residential and commercial land uses remains strong and development sites are being sought to fulfill these residential and commercial land use demands. Moreover, rezoning and developing the site, as proposed, is consistent with the 1996 Comprehensive Land Use Plan's recommendation for rezoning some large underutilized industrially-zoned parcels for PDD developments. The proposed project is consistent with previous planning recommendations that promote the establishment of diverse, affordable, and suitably located housing for senior citizens but would be inconsistent with the future land use recommendation in the 1996 Comprehensive Land Use Plan which called for the establishment of an industrial use on the subject property and retaining industrially zoned land in the Town for intensive industrial development.

It should be noted that the Conceptual Site Plan put forth under the Proposed Action involves the construction of a two-story mini-storage warehouse on the subject site, which is itself, considered an industrial land use and is permitted as-of-right in the Town's L-1 district. The 3.07-acre plot of land (5.8 percent of the site) to be developed with the mini-storage building, will allow a portion of the property to be used for a more practical, less-intensive, easily integrated and needed L-1 Industrial land use, while promoting development with other necessary non-industrial uses. The development of at least some industrial (mini-storage) use will help to offset the loss of industrial zoning in the Town thereby mitigating this impact.

5.6 Summary and Conclusions

In summary, the proposed mixed-use PDD and NH-H will allow beneficial land uses to be established. The project will provide affordable housing and the preservation of land through the acquisition of PBCs and a donation to the Joseph Macchia Environmental Preservation Capital Reserve Fund for land preservation, both of which are beneficial aspects of the plan. The

Proposed Action will generate greater total tax revenue to taxing jurisdictions and comparable school tax surplus to use under the existing zoning. The Proposed Action requires more potable water and will generate a greater volume of wastewater that must be treated and disposed; however, sewage would be treated under either scenario, and the project sponsor will work with SCWA to ensure that water demand for the project can be met. From a land use standpoint, the proposed project is expected to be more compatible with surrounding land uses than potential uses under the existing light industrial (L-1) zoning. Both scenarios conform to land use plans; however, the 1996 Comprehensive Plan update and subsequent plans suggest that the subject site may be more appropriate for mixed uses due to access as L-1 uses on the property would generate substantially more vehicle traffic in the area of the subject site.

The proposed project is in conformance with the local land use pattern and would complement the existing surrounding land uses and incorporates sensitive environmental design. The project fulfills a need in the Town for affordable senior housing and will require the redemption of Pine Barrens Credits that will preserve additional land. This report has been structured to provide additional information on the issues anticipated to be of concern to the Town planning and environmental staff on behalf of the Town Board. This additional information will be used to determine the environmental significance of the proposed project.

SECTION 6.0

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6.0 REFERENCES

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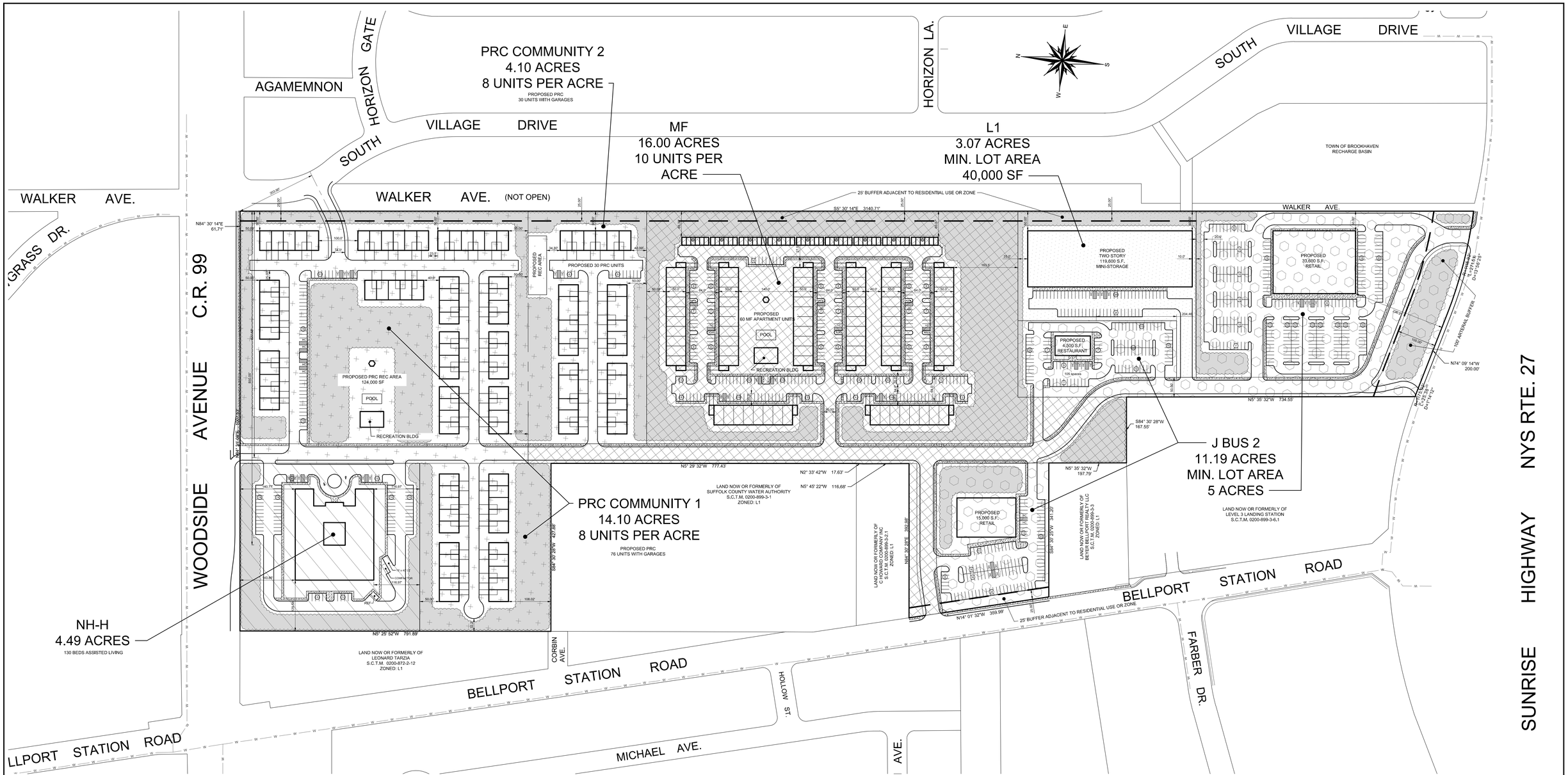


NH-H
REQUIRED FOR ASSISTED LIVING FACILITY:
1 STALL PER 2 BEDS x 130 BEDS = 65 STALLS

PROVIDED: 75 STALLS INCLUDING 4 ACCESSIBLE STALLS
1-15' x 40' LOADING ZONE

PARKING CALCULATIONS:

PDD

MF-1
REQUIRED:
160 UNITS x 2 STALLS PER UNIT = 320 STALLS

PROVIDED: 12 DRIVEWAYS
54 ACCESSORY GARAGE SPACES
245 OFFSTREET SPACES INCLUDING 12 ACCESSIBLE SPACES
TOTAL PROVIDED: 321 STALLS

L-1
REQUIRED FOR MINI-STORAGE:
119,600 S.F. x 1/2,000 S.F. = 60 STALLS

PROVIDED: 60 STALLS INCLUDING 4 ACCESSIBLE STALLS

J BUS 2
- REQUIRED FOR RETAIL:
33,600 GFA x 1/150 GFA = 224 STALLS
PROVIDE: 264 STALLS INCLUDING 4 ACCESSIBLE STALLS

- REQUIRED FOR RETAIL:
15,000 GFA x 1/150 GFA = 100 STALLS
PROVIDED: 111 STALLS INCLUDING 6 ACCESSIBLE STALLS

- REQUIRED FOR RESTAURANT:
180 SEATS INCLUDING 30 BAR STOOLS x 1 PER 2 SEATS = 90 STALLS
PROVIDED: 105 STALLS INCLUDING 4 ACCESSIBLE STALLS

TOTAL REQUIRED: 414 STALLS
PROVIDED: 480 STALLS INCLUDING 14 ACCESSIBLE STALLS

PRC
- REQUIRED FOR COMMUNITY 1:
1.5 PER DWELLING UNIT x 76 UNITS = 114 STALLS
PROVIDED: 76 DRIVEWAYS
47 OFFSTREET INCLUDING 6 ACCESSIBLE STALLS
123 STALLS

- REQUIRED FOR COMMUNITY 2:
1.5 PER DWELLING UNIT X 30 = 45 STALLS
PROVIDE: 30 DRIVEWAYS
15 OFFSTREET INCLUDING 2 ACCESSIBLE STALLS
45 STALLS

BUILDING AREA BREAKDOWN:

PDD

L-1 PARCEL: 119,600 S.F. MINI-STORAGE

MF-1 PARCEL: 20 - STUDIO APARTMENTS @ 750 S.F. = 15,000 S.F.
80 - 1 BR APARTMENTS @ 900 S.F. = 72,000 S.F.
60 - 2 BR APARTMENTS @ 1,150 S.F. = 69,000 S.F.
160 TOTAL 156,000 S.F.

GAZEBO: 166 S.F.
RECREATION BLDG: 2,400 S.F.
TOTAL MF-1: 158,566 S.F.

J BUS 2 PARCEL: 33,600 S.F. RETAIL
4,500 S.F. RESTAURANT
15,000 S.F. MARKET
53,100 S.F. TOTAL

PRC PARCEL:
COMMUNITY 1: 76 - 2BR UNITS @ 2,500 S.F = 190,000 S.F. (EXCL.GARAGES)
GAZEBO: 166 S.F.
RECREATION BLDG: 2,400 S.F.
TOTAL FOR PRC: 192,566 S.F.

COMMUNITY 2: 30 - 2BR UNITS @ 2,500 S.F. = 75,000 S.F.
TOTAL FOR PRC: 267,566 S.F.

TOTAL FOR PDD: 598,832 S.F.

FAR REQUIRED: 60%
FAR PROVIDED: 598,832 S.F. ~ 13.75 ACRES / 48.46 ACRES = 28.37%

NH-H
ASSISTED LIVING FACILITY: 39,116 S.F. FOOTPRINT

LOT OCCUPANCY REQUIRED: 20%
PROVIDED: 20%

ZONING COMPLIANCE TABLE PDD

	REQUIRED	PROVIDED
MIN. LOT AREA	3 ACRES	48.46 ACRES
MIN. LOT WIDTH	100 FEET	472 FEET
MIN. FRONT YARD SETBACK	25 FEET	50 FEET
MIN. SIDE AND REAR YARD SETBACKS	50 FEET	50 FEET
MAX. BUILDING HEIGHT	50 FEET / 3 1/2 STORIES	50 FEET / 3 1/2 STORIES
MAX. FLOOR AREA RATIO	60%	24.54%

L-1
1. PLANNING BOARD SPECIAL PERMIT REQUIRED FOR MINI-STORAGE WAREHOUSE (85-564)
2. SPECIAL PERMIT CRITERIA FOR MINI-STORAGE FACILITY (85-569)

MF-1 (PRIMARY ZONE)
MF DENSITY REQUIRED: 10 UNITS X 16.00 ACRES = 160 UNITS
PROVIDED: 160 UNITS (INCLUDING 12 ATTACHED GARAGES AND 54 ACCESSORY GARAGE SPACES)

RECREATIONAL AREA REQUIRED: 200 SF PER UNIT X 160 UNITS = 32,000 SF
PROVIDED: 38,000 SF

J BUS 2
1. PLANNING BOARD SPECIAL PERMIT REQUIRED FOR RESTAURANT (85-427)
2. VARIANCE FROM § 85-843 B. (2) (c) REQUIRING A 75-FOOT PERIMETER BUFFER ADJACENT TO RES ZONE

PRC (PRIMARY ZONE)
DENSITY REQUIRED: 8 UNITS x 18.20 ACRES = 145 UNITS
PROVIDED: 106 UNITS

COMMUNITY 1: 76 UNITS WITH ATTACHED GARAGES
RECREATIONAL AREA REQUIRED: 200 SF PER UNIT x 76 UNITS = 15,200 SF
PROVIDED: 124,000 SF
COMMUNITY 2: 30 UNITS WITH ATTACHED GARAGES
RECREATIONAL AREA REQUIRED: 200 SF PER UNIT X 30 UNITS = 6,000 SF
PROVIDED: 6,000 SF

ZONING COMPLIANCE TABLE NH-H

	REQUIRED	PROVIDED
MAX. BUILDING HEIGHT	35 FEET / 2 1/2 STORIES	50 FEET / 3 1/2 STORIES *
MAX. BUILDING AREA (FOOTPRINT)	20%	20%
MIN. GROSS AREA	3 ACRES	4.49 ACRES
ROAD FRONTAGE	200 FEET	426 FEET
MIN. FRONT YARD SETBACK	100 FEET	140 FEET
MIN. SIDE YARD SETBACK	50 FEET	65.37 FEET / 129.58 FEET
MIN. REAR YARD SETBACK	75 FEET	116.97 FEET

NOTE: LAND DEVELOPMENT STANDARDS AND SETBACK & BUFFER REQUIREMENTS
WILL BE DEVELOPED WITH THE DIRECTION OF THE PLANNING BOARD

SITE DATA:

AREA OF SITE: 52.95 ACRES
EXISTING ZONE: L-1
PROPOSED ZONE: PDD (L-1, MF-1, J BUS 2, PRC) & NH-H
AREA IN L-1 PARCEL: 3.07 ACRES
AREA IN MF-1 PARCEL: 16.00 ACRES
AREA IN J BUS 2 PARCEL: 11.19 ACRES
AREA IN PRC PARCEL: 18.20 ACRES
AREA IN NH-H PARCEL: 4.49 ACRES

SCHOOL DISTRICT: SOUTH COUNTRY CSD
WATER DISTRICT: SCWA
FIRE DISTRICT: BELLPORT
POST OFFICE: NORTH BELLPORT
S.C.T.M.: 0200-872-02-15 & 16
0200-899-03-2.2, 2.3, 2.4 & 7

BOUNDARY INFORMATION TAKEN FROM SURVEY PREPARED BY
HAYNES LAND SURVEYORS, AMENDED AUGUST 4, 2014

L-1 ZONE

MF-1 ZONE

J BUS 2 ZONE

PRC ZONE

NH-H ZONE

LOT COVERAGES
AREA OF SITE: 2,306,630.47 S.F. ~ 52.95 ACRES
AREA TO REMAIN NATURAL/REVEGETATED: 488,427 S.F. ~ 11.21 ACRES ~ 21.18%
AREA OF LANDSCAPING / TURF: 667,819 S.F. ~ 15.33 ACRES ~ 28.95%
AREA IN BUILDINGS: 416,175 S.F. ~ 9.55 ACRES ~ 18.04%
AREA IN PAVEMENT: 658,816 S.F. ~ 15.12 ACRES ~ 28.56%
AREA IN WALKS: 75,393 S.F. ~ 1.73 ACRES ~ 3.27%

AREA OF PRESERVED LAND:
21.18% OF SITE

NO.	DATE:	REVISIONS:	BY:
4	09-07-2018	REV PER TOWN COMMENTS, LETTER DATED JULY 23, 2018	LB
3	06-21-2018	REV PER TOWN AND CLIENT	LB
2	01-24-2018	ADJUSTED J BUS 5 ZONE PER TOWN COMMENTS	LB
1	01-05-2018	REVISED PER TOWN COMMENTS, LETTER DATED AUGUST 29, 2017	LB

P.E. SEAL AND SIGNATURE

CONCEPTUAL SITE PLAN
FOR
CREST TOWN CENTER
SITUATED AT
BELLPORT
TOWN OF BROOKHAVEN, SUFFOLK COUNTY, NEW YORK
S.C.T.M.: DISTRICT: 200, SECT. 872, BLK. 02, LOTS 15 & 16
DISTRICT: 200, SECT. 899, BLK. 03, LOTS 2.2, 2.3, 2.4, & 7

NELSON & POPE
ENGINEERS & SURVEYORS
WALT WHITMAN ROAD MELVILLE N
PHONE FAX
WWW.NELSONPOPE.COM

PROJECT NO.:
DRAWN: L.
CHECKED: C.
DATE:
SCALE:
FILE NO.:
CADD: REZONE
DRAWING NO.: C-101
SHEET NO.: OF

APPENDIX A

SEQRA DOCUMENTS

Appendix A-1
Part 1 Environmental Assessment Form

(Dated December 28, 2017)

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

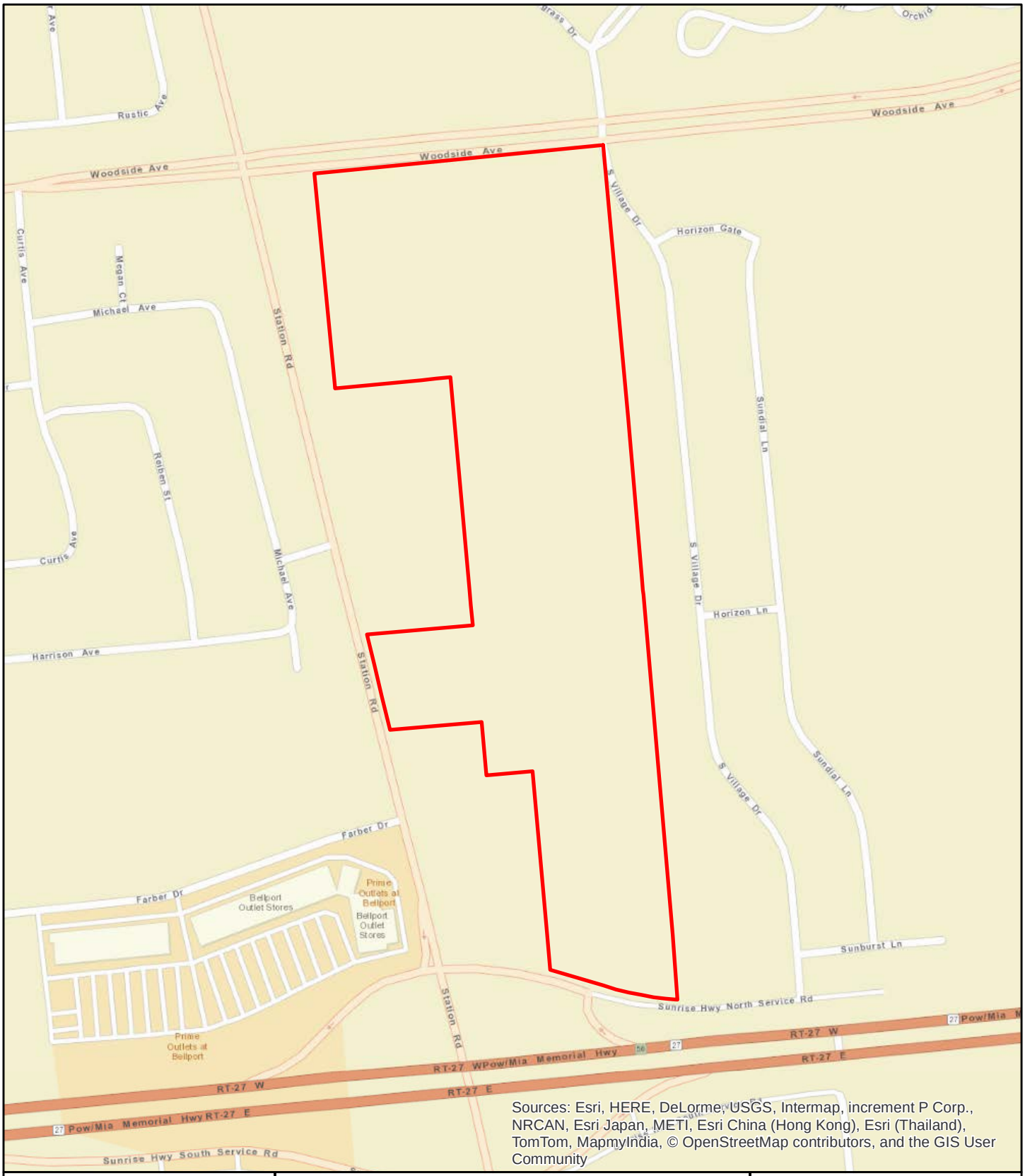
Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Sponsor Information.

Name of Action or Project: Crest Town Center PDD and NH-H Change of Zone		
Project Location (describe, and attach a general location map): North of Sunrise Highway, south of Woodside Ave., east of Bellport Station Rd. & west of S. Village Dr. in Bellport, Town of Brookhaven (See attached location map.)		
Brief Description of Proposed Action (include purpose or need): (see attached)		
Name of Applicant/Sponsor: Crest Bellport, LLC	Telephone: (631) 582-4800 E-Mail:	
Address: 1201 NYS Route 112		
City/PO: Port Jefferson Station	State: NY	Zip Code: 11776
Project Contact (if not same as sponsor; give name and title/role): Enrico Scarda, Principal	Telephone: (631) 582-4800 E-Mail: e.scarda@thecrestgroupllc.com	
Address: (same)		
City/PO:	State:	Zip Code:
Property Owner (if not same as sponsor): (same)	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:

RESET FORM



Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

FIGURE 1
LOCATION MAP

Source: ESRI Web Mapping Service

Scale: 1 inch = 500 feet

N

Crest Town Center Bellport

Expanded EAF

B. Government Approvals

B. Government Approvals Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Council, Town Board, or Village Board of Trustees ☑Yes ☐No	Change of Zone (COZ)	Pending
b. City, Town or Village Planning Board or Commission ☑Yes ☐No	Site Plan, Special Permits (2), Variance, Land Division	Pending COZ
c. City Council, Town or Village Zoning Board of Appeals ☐Yes ☑No		
d. Other local agencies ☐Yes ☑No		
e. County agencies ☑Yes ☐No	Sewer connection (SCDPW, SCDHS), Road work (SCDPW), Water supply (SCWA, SCDHS)	Pending COZ Pending COZ
f. Regional agencies ☑Yes ☐No	239-m Referral (SCPC)	Pending
g. State agencies ☑Yes ☐No	SPDES General Stormwater (NYSDEC), Road work (NYSDOS), STP connection (NYSDEC)	Pending COZ
h. Federal agencies ☐Yes ☑No		

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐Yes ☑No

If Yes,

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes ☑No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes ☐No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☑Yes ☐No

(1996 Draft Land Use Plan & 2014 hamlet plan recommend Industrial use for site

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☐Yes ☑No

If Yes, identify the plan(s):

_____

_____

_____

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☑No

If Yes, identify the plan(s):

_____

_____

_____

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C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
L-Industrial-1 (L-1)

b. Is the use permitted or allowed by a special or conditional use permit? ☐ Yes ☑ No

c. Is a zoning change requested as part of the proposed action? ☑ Yes ☐ No
If Yes,
i. What is the proposed new zoning for the site? PDD (46.07 acres) & NH-H (6.88 acres)

C.4. Existing community services.

a. In what school district is the project site located? South Country CSD

b. What police or other public protection forces serve the project site?
Suffolk County Police Department, 5th Precinct

c. Which fire protection and emergency medical services serve the project site?
Berookhaven Fire Department

d. What parks serve the project site?
Town Model Airplane Park, Martha Avenue Recreational Park, 12 Pines Park

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)?
Mixed-Use PDD w/ mini storage, retail, restaurant, fuel sales, assisted living, retirement community, apartments

b. a. Total acreage of the site of the proposed action? 52.95 acres
b. Total acreage to be physically disturbed? 38.62 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 52.95 acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % _____ Units: _____

d. Is the proposed action a subdivision, or does it include a subdivision? ☑ Yes ☐ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
Includes 3.07 acre L-1 use; 19.01 acre MF-1 use; 9.81 acre J-2 use; 2.46 acre J-5 use; 11,71 acre PRC use & 6.88 acre NH-H use
ii. Is a cluster/conservation layout proposed? ☐ Yes ☑ No
iii. Number of lots proposed? 6
iv. Minimum and maximum proposed lot sizes? Minimum 2.46 Maximum 19.01

e. Will proposed action be constructed in multiple phases? ☑ Yes ☐ No
i. If No, anticipated period of construction: TBD months
ii. If Yes:
- Total number of phases anticipated *
- Anticipated commencement date of phase 1 (including demolition) * month _____ year
- Anticipated completion date of final phase * month _____ year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases:

* Number of phases and associated schedule unknown at present

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f. Does the project include new residential uses? ☑ Yes ☐ No

If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase	_____	_____	_____	76 PRC, 190 MF, 150 ALF beds
At completion of all phases	_____	_____	_____	76 PRC, 190 MF, 150 ALF beds

g. Does the proposed action include new non-residential construction (including expansions)? ☑ Yes ☐ No

If Yes,

i. Total number of structures 39

ii. Dimensions (in feet) of largest proposed structure: 3.5 story height; 220 width; and 325 length

iii. Approximate extent of building space to be heated or cooled: 780,705 (est. total) square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐ Yes ☑ No

If Yes,

i. Purpose of the impoundment: _____

ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☐ Other specify: _____

iii. If other than water, identify the type of impounded/contained liquids and their source. _____

iv. Approximate size of the proposed impoundment. Volume: _____ million gallons; surface area: _____ acres

v. Dimensions of the proposed dam or impounding structure: _____ height; _____ length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete): _____

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? (Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite) ☐ Yes ☑ No

If Yes:

i .What is the purpose of the excavation or dredging? _____

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

- Volume (specify tons or cubic yards): _____
- Over what duration of time? _____

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them. _____

iv. Will there be onsite dewatering or processing of excavated materials? ☐ Yes ☐ No

If yes, describe. _____

v. What is the total area to be dredged or excavated? _____ acres

vi. What is the maximum area to be worked at any one time? _____ acres

vii. What would be the maximum depth of excavation or dredging? _____ feet

viii. Will the excavation require blasting? ☐ Yes ☐ No

ix. Summarize site reclamation goals and plan: _____

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☐ Yes ☑ No

If Yes:

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): _____

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ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres: _____

iii. Will proposed action cause or result in disturbance to bottom sediments? ☐ Yes ☐ No
If Yes, describe: _____

iv. Will proposed action cause or result in the destruction or removal of aquatic vegetation? ☐ Yes ☐ No
If Yes:

- acres of aquatic vegetation proposed to be removed _____
- expected acreage of aquatic vegetation proposed to be removed _____
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access): _____
- proposed method of plant removal: _____
- if chemical/herbicide treatment will be used, specify product(s): _____

v. Describe any proposed reclamation/mitigation following disturbance: _____

c. Will the proposed action use, or create a new demand for water? ☑ Yes ☐ No
If Yes:

i. Total anticipated water usage/demand per day: domestic & irrigation +/-123,043 gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☑ Yes ☐ No
If Yes:

- Name of district or service area: SCWA
- Does the existing public water supply have capacity to serve the proposal? ☑ Yes ☐ No
- Is the project site in the existing district? ☑ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☑ No
- Do existing lines serve the project site? ☐ Yes ☑ No

iii. Will line extension within an existing district be necessary to supply the project? ☐ Yes ☑ No
If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____
- Source(s) of supply for the district: _____

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐ Yes ☑ No
If, Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- Proposed source(s) of supply for new district: _____

v. If a public water supply will not be used, describe plans to provide water supply for the project: _____

vi. If water supply will be from wells (public or private), maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☑ Yes ☐ No
If Yes:

i. Total anticipated liquid waste generation per day: 97,405 gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each): Sanitary wastewater

iii. Will the proposed action use any existing public wastewater treatment facilities? ☑ Yes ☐ No
If Yes:

- Name of wastewater treatment plant to be used: Medford STP
- Name of district: SCSD #7
- Does the existing wastewater treatment plant have capacity to serve the project? ***To be Determined*** ☐ Yes ☐ No
- Is the project site in the existing district? ☐ Yes ☑ No
- Is expansion of the district needed? ☑ Yes ☐ No

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- Do existing sewer lines serve the project site? ☐Yes ☑No
- Will line extension within an existing district be necessary to serve the project? ☑Yes ☐No

  If Yes:
  - Describe extensions or capacity expansions proposed to serve this project: _____

  STP for SCSD #7 has sufficient capacity to serve the project. A connection will be made to an existing manhole west of Bellport Station Rd.

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐Yes ☑No

If Yes:
- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge, or describe subsurface disposal plans):

_____

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

N/A

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑Yes ☐No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 27.75 acres (impervious surface)

_____ Square feet or 52.95 acres (parcel size)

ii. Describe types of new point sources. Stormwater runoff

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

Into an on-site drainage system that will discharge to the subsurface

- If to surface waters, identify receiving water bodies or wetlands: _____

  N/A
- Will stormwater runoff flow to adjacent properties? ☐Yes ☑No

iv. Does proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☐Yes ☑No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☐Yes ☑No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐Yes ☑No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes ☐No

ii. In addition to emissions as calculated in the application, the project will generate:
- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

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h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☑Yes ☐No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐ Morning ☐ Evening ☑Weekend

☐ Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of semi-trailer truck trips/day: Unknown at present

iii. Parking spaces: Existing 0 Proposed 1,186 Net increase/decrease +1,186

iv. Does the proposed action include any shared use parking? ☐Yes ☑No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

Project includes new boulevard-style internal roadway aligned north-south, between Woodside Ave. and the Sunrise Highway North Service Road.

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☑Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☑No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☑No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☑Yes ☐No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: Unknown at present

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):

Will utilize PSE&G (electricity) & National Grid (natural gas)

iii. Will the proposed action require a new, or an upgrade to, an existing substation? ☐Yes ☑No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 7AM-5PM
- Saturday: N/A
- Sunday: N/A
- Holidays: N/A

ii. During Operations:

- Monday - Friday: 24/7 (res); 9AM-10PM (non-res)
- Saturday: 24/7 (res); 9AM-6PM (non-res)
- Sunday: 24/7 (res); 10AM-6PM (non-res)
- Holidays: 24/7 (res); 10AM-6PM (non-res)

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m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

Anticipate short-duration noise generation intermittently during construction period.

ii. Will proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☑ No

Describe: _____

n.. Will the proposed action have outdoor lighting? ☑ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

Anticipate pole-mounted lights in parking areas, wall-mounted lights on buildings, and low, bollard-mounted lights along sidewalks & footpaths., in conformance with Town Dark Sky lighting requirements

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☑ No

Describe: _____

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products (185 gallons in above ground storage or an amount in underground storage)? ☑ Yes ☐ No

If Yes:

i. Product(s) to be stored possible fueiling station

ii. Volume(s) TBD per unit time TBD (e.g., month, year)

iii. Generally describe proposed storage facilities:

Underground fuel storage tanks in accordance with all applicable NYSDEC & SCDHS standards and specifications

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☑ No

If Yes:

i. Describe proposed treatment(s):

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☑ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☑ Yes ☐ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: Unknown, TBD tons per _____ (unit of time)
- Operation : Unknown, TBD tons per _____ (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: Anticipate contractors to conduct individual recycling & waste handling efforts
- Operation: Anticipate site occupants to conduct individual waste handling & recycling efforts; expect to contract with private haulers for solid waste removal.

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: Expect that contractors will provide containers for wastes & recycled materials, to be removed by private haulers to approved C&D facility.
- Operation: Expect to provide communal containers for solid waste storage, prior to removal by private hauler working under contract to site owner, for disposal and/or recycling at an approved facility.

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s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☑ Yes ☐ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

Possible commercial fueling station that would sell gasoline and possibly diesel (TBD)

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

Underground storage of fuels at a commercial vehicle fueling station, periodic deliveries of fuels and dispensing of fuels to private vehicles by customers

iii. Specify amount to be handled or generated TBD tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

N/A, commercial fueling facility will comply with all NYSDEC and SCDHS requirements

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☑ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

N/A. Fuel temporary stored in USTs before being dispensed to private vehicles

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☑ Industrial ☑ Commercial ☑ Residential (suburban) ☐ Rural (non-farm)

☑ Forest ☐ Agriculture ☐ Aquatic ☑ Other (specify): Transportation (Sunrise Hwy.); Institution & Public Park

ii. If mix of uses, generally describe:

Residential uses dominate to northeast, east, west & south (beyond Sunrise Hwy.), with substantial areas of industrial & commercial uses to west &north. Institutional use (school) +/- 2,000 feet to the southwest, and Public Park to southeast.

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	0	27.75	+27.75
• Forested	52.34±	10.83	-41.51
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	0	0	0
• Agricultural (includes active orchards, field, greenhouse etc.)	0	0	0
• Surface water features (lakes, ponds, streams, rivers, etc.)	0	0	0
• Wetlands (freshwater or tidal)	0	0	0
• Non-vegetated (bare rock, earth or fill)	0.61	0	-0.61
• Other Describe: landscaped	0	14.37	+14.37

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c. Is the project site presently used by members of the community for public recreation? ☐ Yes ☑ No

i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☐ Yes ☑ No

If Yes,

i. Identify Facilities:

_____

_____

e. Does the project site contain an existing dam? ☐ Yes ☑ No

If Yes:

i. Dimensions of the dam and impoundment:

- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____

iii. Provide date and summarize results of last inspection:

_____

_____

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Has the facility been formally closed? ☐ Yes ☐ No

- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:

_____

_____

iii. Describe any development constraints due to the prior solid waste activities: _____

_____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

_____

_____

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐ Yes ☑ No

If Yes:

i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐ Yes ☐ No

☐ Yes – Spills Incidents database Provide DEC ID number(s): _____

☐ Yes – Environmental Site Remediation database Provide DEC ID number(s): _____

☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures: _____

_____

_____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☐ Yes ☑ No

If yes, provide DEC ID number(s): _____

iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):

_____

_____

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v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☑ No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? 1,560 feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☑ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____%

c. Predominant soil type(s) present on project site:

PlA	60 (est.) %
RdA	30 (est.) %
HaA + RdB	10 (est.) %

d. What is the average depth to the water table on the project site? Average: 39 feet

e. Drainage status of project site soils:
☑ Well Drained: 100 % of site
☐ Moderately Well Drained: _____% of site
☐ Poorly Drained _____% of site

f. Approximate proportion of proposed action site with slopes:
☑ 0-10%: 100 % of site
☐ 10-15%: _____% of site
☐ 15% or greater: _____% of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe: _____

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☐ Yes ☑ No

ii. Do any wetlands or other waterbodies adjoin the project site? ☐ Yes ☑ No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☐ Yes ☐ No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name _____ Classification _____
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name _____ Approximate Size _____
- Wetland No. (if regulated by DEC) _____

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☐ No

If yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? ☐ Yes ☑ No

j. Is the project site in the 100 year Floodplain? ☐ Yes ☑ No

k. Is the project site in the 500 year Floodplain? ☐ Yes ☑ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☑ Yes ☐ No
If Yes:
i. Name of aquifer: ***Upper Glacial & Magothy***

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m. Identify the predominant wildlife species that occupy or use the project site: _____

Typical suburban species (e.g., squirrels, song birds, rabbits, deer, etc.) _____ _____

_____ _____ _____

n. Does the project site contain a designated significant natural community? ☐ Yes ☑ No

If Yes:

i. Describe the habitat/community (composition, function, and basis for designation): _____

ii. Source(s) of description or evaluation: _____

iii. Extent of community/habitat:

- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☑ Yes ☐ No

Sandplain gerardia (Agalinis acuta) State & Federally listed "Endangered" plant; Flax-leaf Whitetop (Sericocarpus linifolius) State "Threatened" species

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☑ Yes ☐ No

spotted wintergreen (Chimaphila maculata) which is a NYS exploitably vulnerable plant species

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐ Yes ☑ No

If yes, give a brief description of how the proposed action may affect that use: _____

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐ Yes ☑ No

If Yes, provide county plus district name/number: _____

b. Are agricultural lands consisting of highly productive soils present? ☐ Yes ☑ No

i. If Yes: acreage(s) on project site? _____

ii. Source(s) of soil rating(s): _____

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐ Yes ☑ No

If Yes:

i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature

ii. Provide brief description of landmark, including values behind designation and approximate size/extent: _____

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐ Yes ☑ No

If Yes:

i. CEA name: _____

ii. Basis for designation: _____

iii. Designating agency and date: _____

RESET FORM

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on, or has been nominated by the NYS Board of Historic Preservation for inclusion on, the State or National Register of Historic Places? ☐ Yes ☑ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☐ Historic Building or District

ii. Name: _____

iii. Brief description of attributes on which listing is based:

_____

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☐ Yes ☑ No

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☑ No

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within five miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☐ Yes ☑ No

If Yes:

i. Identify resource: _____

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): _____

iii. Distance between project and resource: _____ miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☑ No

If Yes:

i. Identify the name of the river and its designation: _____

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name *Michael Brusseau, AICP CEP, LEED AP* Date *December 28, 2017*

Signature _____ Title *Sr. Environmental Planner, Nelson, Pope & Voorhis*

PRINT FORM

RESET FORM

EAF Mapper Summary Report

Thursday, December 28, 2017 8:52 AM

Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.

B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	No
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	No
E.2.l. [Aquifers]	Yes
E.2.l. [Aquifer Names]	Sole Source Aquifer Names:Nassau-Suffolk SSA
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	Yes

E.2.o. [Endangered or Threatened Species - Name]	Flax-leaf Whitetop
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National Register of Historic Places]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	No
E.3.i. [Designated River Corridor]	No

Full EAF Part I Attachment
Brief Description of the Proposed Action

The applicant, Crest Bellport, LLC, seeks Town Board approval to rezone the subject 52.95-acre vacant and wooded property from L-Industrial-1 ("L-1") to a mixed-use Planned Development District (PDD) and a Health Facility District (NH-H). The requested changes of zone which are filed under one change of zone application specifically seek to create a 46.06-acre mixed-use PDD and a 6.88-acre assisted living facility. To do this and develop the site, once the change of zone is approved, a subdivision of the property will be obtained from the Town Planning Board along with reciprocal easements for access, parking and utilities as needed, as well as site plan approval for uses on the site.

The proposed 46.06-acre mixed-use PDD will include:

1) a multi-family residential development consisting of 20 studio apartments at 750 SF, 80 one-bedroom apartments at 900 SF, and 90 two-bedroom units at, 1150 SF;
2) a planned retirement community ("PRC") consisting of 76 2,500 SF two-bedroom dwelling units with private garages;
3) the proposed 6.88-acre NH-H zone includes a three-story assisted living facility with a 62,900 SF building footprint which will contain a total of 150 beds;
4) 33,600 SF of retail space;
5) a 4,500 SF restaurant;
6) a 6,805 SF market with fueling station; and
7) a two-story mini-storage warehouse facility having a total gross floor area of 119,600 SF.

The north end of the property (37.6 acres or 71 percent of the site) will be developed with the residential uses including the assisted living facility, PRC, and multifamily housing; while, 29 percent of the site (15.34 acres) at the south end of the property will be developed with the mixed commercial uses including mini-storage warehouse, restaurant, retail space and convenience market with filling station.

Appendix A-2
Positive Declaration Determination of Significance

(Adopted May 7, 2018)

STATE ENVIRONMENTAL QUALITY REVIEW (SEQR)
POSITIVE DECLARATION
Notice of Intent to Prepare a Draft Environmental Impact Statement
Determination of Significance

LEAD AGENCY: **Town of Brookhaven Town Board**
One Independence Hill
Farmingville, NY 11738

TITLE OF ACTION:
Crest Town Center Planned Development District (PDD) and NH-H Health Facility District

APPLICANT:
Enrico Scarda, Principal
Crest Bellport, LLC
1201 NYS Route 112
Port Jefferson Station, NY 11776

SEQR STATUS: **Type I**

FILE #: **2017-011-CZ**

DESCRIPTION OF ACTION: The proposed project involves two changes of zone for a 52.95-acre parcel currently zoned L-Industrial-1 under a single change of zone application. One change of zone would provide a mixed-use development under the Planned Development District (PDD) zoning code for 46.07 acres of the site. A second change of zone to NH-H Health Facility District would occupy the remaining 6.88 acres of the property for the development of an Assisted Living Facility (ALF). The proposed Planned Development District (PDD) would include multi-family residences (90 two-bedroom, 80 one-bedroom, and 20 studio apartments), mini-storage space (119,600 SF), retail space (33,600 SF), restaurant space (4,500 SF), planned retirement community (76 two-bedroom units), and a market with fuel sales (6,805 SF). The NH-H would provide for a 150-bed ALF, in a single three-story building with a building footprint of 62,900 SF.

LOCATION: S/s Woodside Ave., E/o Station Rd., Bellport

S.C.T.M. #: 0200 87200 0200 015000 and 016000, 0200 89900 0300 002002, 002003, 002004, and 007000 (approx. 52.95 acres)

This notice is issued pursuant to Part 617 of the implementing regulations pertaining to and has been prepared in accordance with Article 8 (State Environmental Quality Review Act) of the Environmental Conservation Law (ECL).

The Town Board of the Town of Brookhaven, as the SEQR Lead Agency, has determined that the proposed action described above may have a significant impact on the environment and that a Draft Environmental Impact Statement (DEIS) should be prepared.

LEAD AGENCY DESIGNATION:
The Town Board in reviewing the application in accordance with SEQR Parts 617.3 and 617.6, using the information available and comparing it with the thresholds set forth in Part 617.4, has determined that the proposed action is a Type I action. A coordinated review for Type I actions involving more than one agency was initiated on **March 27, 2017**, as set forth in SEQR Part 617.6 (b), to notify other involved

regulatory agencies of the Proposed Action and the need to determine a SEQR lead agency. The Town Board expressed its desire to act as Lead Agency.

Responses were received from the Town of Brookhaven Department of Public Safety, Town of Brookhaven Highway Department, Town of Brookhaven Division of Traffic Safety, Suffolk County Department of Public Works, Suffolk County Water Authority, New York State Department of Transportation, and the New York State Department of Environmental Conservation. Significant comments were received in the responses and no involved agency contested the Town of Brookhaven interest in seeking lead agency status. Therefore, the Town Board of the Town of Brookhaven was confirmed as Lead Agency for the Proposed Action.

Part 2 of the Full Environmental Assessment Form (FEAF) was completed by the Lead Agency to identify the relevant environmental areas that may be impacted by the proposed activity. Impacts have been identified to land, surface waters, groundwater, plants, animals, open space, a Critical Environmental Area (CEA), transportation, energy, noise, odor, light, human health, and consistency with community plans.

In response to the identified impacts, the applicant submitted an Expanded Environmental Assessment Form (EEAF), dated February 2, 2018, to the Lead Agency to provide supplemental environmental information and analyses of the proposed project.

REASONS SUPPORTING THIS DETERMINATION:

The Town Board, as Lead Agency, after reviewing and analyzing the Environmental Assessment Form prepared for the Proposed Action, the application materials, the *Expanded Environmental Assessment Form (EEAF), Crest Town Center, Change of Zone Application*, prepared by Nelson, Pope & Voorhis, LLC, dated February 2, 2018, various land use studies, the issues and relevant areas of environmental concern identified and as enumerated below, the criteria contained in Part 617.7, and other supporting information, finds that the size and scope of the Proposed Action has the potential to result in one or more significant adverse environmental impacts in one or more areas due to the proposed construction and operation of the facility, and has determined that a Draft Environmental Impact Statement (DEIS) should be prepared. This determination is based, in part, on the following identified environmental impacts:

Impacts on Land

- Proposed action may involve construction on, or physical alteration of, approximately 40 acres of pitch pine-oak-heath woodland forested area of the proposed site.
- The proposed action may involve the excavation and removal of more than 1,000 tons of natural material.
- The proposed action may involve construction that continues for more than one year or in multiple phases.
- The proposed action may result in increased erosion, whether from physical disturbance or vegetation removal (including from treatment by herbicides).

Impacts on Surface Water

- The proposed action may affect one or more surface water bodies (e.g., streams, rivers, ponds or lakes) within the boundaries of the South Shore Estuary Reserve including the Mud, Abets, and Hedges Creeks.
- The proposed action may require the construction of new, or expansion of existing, wastewater treatment facilities.

Impacts on Groundwater

- The project location is above the Nassau-Suffolk Sole Source Aquifer, adjacent to a Suffolk County Water Authority (SCWA) Station Road Well Field, within the 0-2 year contributing area to the southernmost wells in the Station Road Well Field 2, and within a Suffolk County Department of Health Services (SCDHS) Water Supply Sensitive Area (WSSA) which is defined in part as: "Areas in close proximity to existing or identified future public water supply wellfields."
- The proposed action is anticipated to utilize approximately 123,043 gallons per day of ground water which will create additional demand on supplies from existing water supply wells.
- Water supply demand from the proposed action may exceed safe and sustainable withdrawal capacity rate of the local supply or aquifer.
- The proposed action may allow or result in residential uses in areas without water and sewer services.
- The proposed action may have the potential to introduce contaminants to ground water or an aquifer.

Impacts on Plants and Animals

- The proposed action may result in a loss of approximately 40 acres of forested Pitch pine-oak-heath woodland flora and the associated fauna utilizing the habitat.
- The proposed action may cause reduction in population or loss of individuals of any threatened or endangered species, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.
- The proposed action may result in a reduction or degradation of any habitat used by any rare, threatened or endangered species, as listed by New York State or the federal government.
- The proposed action may cause reduction in population, or loss of individuals, of any species of special concern or conservation need, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.
- The proposed action may result in a reduction or degradation of any habitat used by any species of special concern and conservation need, as listed by New York State or the Federal government.
- The proposed action may result in the removal of, or ground disturbance in, any portion of a designated significant natural Pitch pine-oak-heath woodland community.
- The proposed action may substantially interfere with nesting/breeding, foraging, or over-wintering habitat for the predominant species that occupy or use the project site.

Impacts on Open Space and Recreation

- The proposed action may result in a loss of recreational opportunities or a reduction of an open space resource as designated in any adopted municipal open space plan.
- The proposed action may result in an impairment of natural functions, or "ecosystem services", provided by an undeveloped area, including but not limited to storm water storage, nutrient cycling, wildlife habitat.
- The proposed action may eliminate open space or recreational resource in an area with few such resources.
- The proposed project will disturb approximately 40 acres of vacant forest in the North Bellport community.

Impacts on Critical Environmental Areas

- The proposed project is within the South Shore Estuary Reserve and the watershed areas of Mud, Abets, and Hedges Creeks.

Impacts on Transportation

- The proposed action may result in a change to existing transportation systems.
- Projected traffic increase may exceed capacity of existing road network.
- The proposed action may result in the construction of paved parking area for 500 or more vehicles.
- The proposed action will degrade existing transit access.
- The proposed action may alter the present pattern of movement of people or goods.

Impacts on Energy

- The proposed action may cause an increase in the use of any form of energy.
- The proposed action will require a new, or an upgrade to an existing, substation.
- The proposed action will require the creation or extension of an energy transmission or supply system to serve more than 50 single or two-family residences or to serve a commercial or industrial use.
- The proposed action may utilize more than 2,500 MWhrs per year of electricity.
- The proposed action may involve heating and/or cooling of more than 100,000 square feet of building area when completed.

Impacts on Noise, Odor, and Light

- The proposed action may result in an increase in noise, odors, or outdoor lighting.
- The proposed action may result in light shining onto adjoining properties.
- The proposed action may result in lighting creating sky-glow brighter than existing area conditions.
- Noise generated during construction will be near a residential community and well-traveled roadways.

Impacts on Human Health

- The proposed action may have an impact on human health from exposure to new or existing sources of contaminants.
- The proposed action may result in excavation or other disturbance within 2000 feet of a site used for the disposal of solid or hazardous waste.
- The amounts of solid wastes to be generated is unknown.

Consistency with Community Plans

- The proposed action is not consistent with adopted land use plans.
- The proposed action is inconsistent with local land use plans or zoning regulations.
- The proposed action is inconsistent with any County plans, or other regional land use plans.
- The proposed action may cause a change in the density of development that is not supported by existing infrastructure or is distant from existing infrastructure.
- The Town of Brookhaven 1996 Comprehensive Land Use Plan and the 2009 Sunrise Highway Corridor Study recommend the subject properties for industrial uses.

Cumulative Impacts

The increased residential development and the commercial development may be growth inducing and could have an adverse cumulative impact on the key intersection of Station Road and the Sunrise Highway (NYS Rt. 27) that could be significant, particularly with respect to traffic. The proposed action will also set an important precedent for future project development under the Planned Development District concept in lieu of industrial development. Cumulative impacts of this and other nearby projects in the area need to be addressed. Alternatives and project mitigation must be considered.

As a result, the project has the potential to result in significant environmental impacts in the following areas: initial construction, land use and zoning, water resources, ecological resources, a Critical Environmental Area (CEA), traffic and transportation, open space, energy, noise, odor, light, human health, consistency with community plans, storm water pollution prevention measures, waste management/disposal, and cumulative impacts.

The Board has considered that the purpose of the DEIS is to inform the public and other public agencies as early as possible that the project may significantly affect the quality of the environment, and to solicit comments which will assist all agencies in determining the environmental consequences of the proposed action.

Public Scoping of the Environmental Impact Statement will occur:
The Town of Brookhaven will undertake public scoping of the Environmental Impact Statement on **Monday, June 18, 2018 in the Brookhaven Town Hall Media Room, Second Floor, Brookhaven Town Hall, One Independence Hill, Farmingville, NY from 5:00 pm to 7:00 pm.** A Draft Scoping Document will be prepared and forwarded to all Involved and Interested Agencies and any person requesting a copy and posted on the Town of Brookhaven website http://www.brookhavenny.gov/. Notice of the time and place of the public scoping will be forwarded to all Involved and Interested Agencies, published in the official newspapers of the Town of Brookhaven, and will be posted on the Town of Brookhaven's website http://www.brookhavenny.gov/. After receiving comments on the Draft Scope, the Town of Brookhaven intends to issue a Final Scope, which will direct the content of the Environmental Impact Statement.

REVIEW AGENCY:	**The Town of Brookhaven Town Board**
CONTACT PERSON:	**Peter E. Fountaine, Division of Environmental Protection**
ADDRESS:	**One Independence Hill, Farmingville, NY 11738**
PHONE NO.:	**631-451-6455**
EMAIL:	pfountaine@brookhavenny.gov

COPIES OF THIS NOTICE SENT TO:
Applicant: Enrico Scarda, Principal - Crest Bellport, LLC
Environmental Notice Bulletin
Involved/Interested Agencies:
Kimberly Kennedy, Assistant to General Counsel, Suffolk County Water Authority
Craig Platt, Suffolk County, Sewer Agency
Gilbert Anderson, Commissioner, Suffolk County Department of Public Works
James L. Tomarken, Commissioner, Suffolk County Department of Health Services
Mark Carrara, Deputy Permit Administrator, Region 1, NYS Dept. of Environmental Conservation
Shaik A. Saad, P.E, New York State, Department of Transportation
Sheref Fathi, Regional Environmental Manager, NYS Dept. of Transportation
Andrew P. Freleng, Chief Planner, Suffolk County Department of Planning
Town of Brookhaven:
Donna Lent, Town Clerk and Registrar
Councilperson Michael Loguercio – Council District 4
Vincent E. Pascale, Chairperson, Town of Brookhaven Planning Board
Daniel Losquadro, Superintendent, Town of Brookhaven Highway Department
Tullio Bertoli, Commissioner, PELM
Germaine Ortiz, P.E., Town of Brookhaven, Division of Engineering
Keith Williams, Town of Brookhaven, Division of Fire Prevention
Daniel P. Losquadro, Town of Brookhaven, Highway Department

John Lessler, Town of Brookhaven, Open Space Committee

<u>THIS DETERMINATION IS NOT COMPLETE UNTIL AUTHORIZED AS FOLLOWS:</u>
ADOPTED BY RESOLUTION ON:

Donna Lent, Town Clerk and Registrar:

Appendix A-3
Final Scope

(Adopted July 24, 2018)

Town of Brookhaven Long Island

Edward P. Romaine, Supervisor

DATE: July 24, 2018

TO: Kimberly Kennedy, Assistant to General Counsel, Suffolk County Water Authority
Craig Platt, Special Projects Supervisor, Suffolk County Sewer Agency
Gilbert Anderson, Commissioner, Suffolk County Department of Public Works
James L. Tomarken, Commissioner, Suffolk County Department of Health Services
Mark Carrara, Deputy Permit Administrator, Region 1, New York State Department of Environmental Conservation
Gene Smith, New York State Department of Transportation (NYSDOT Case No. 62559)
Andrew P. Freleng, Chief Planner, Suffolk County Department of Planning
John Pavacic, Executive Director, New York State Central Pine Barrens Joint Planning and Policy Commission
Vincent E. Pascale, Chairperson, Town of Brookhaven Planning Board
Daniel P. Losquadro, Superintendent of Highways, Town of Brookhaven Highway Department
Germaine Ortiz, Town of Brookhaven Division of Engineering
Keith Williams, Town of Brookhaven Division of Fire Prevention
John Lessler, Town of Brookhaven Open Space Committee
Steven T. Papa, U.S. Fish and Wildlife Service, Long Island Field Office

FROM: Peter E. Fountaine, Pr. Environmental Analyst, DEP, PELM P.E.F.

RE: Final Scoping Document and Public Scoping for Change of Zone from L-Industrial-1 to Planned Development District (PDD) and NH-H Health Facility District
The Crest Town Center at Bellport
Town File Number: 2017-011-CZ
SCTM #s: 0200 87200 0200 015000 and 016000, 0200 89900 0300 002002, 002003, 002004, and 007000 (approx. 52.95 acres)

The Town Board of the Town of Brookhaven, as the SEQR Lead Agency, has determined that the proposed action described above may have a significant impact on the environment and that a Draft Environmental Impact Statement (DEIS) should be prepared. A copy of the May 3, 2018 Town Board Resolution adopting a positive declaration for the above-mentioned change of zone application was sent to your offices on May 7, 2018.

A draft scoping document was received from the applicant and was sent to your offices on May 10, 2018. It was posted on the Town's website and sent to interested parties requesting a copy. A public scoping meeting was held on Monday, June 18, 2018 from 5:00 to 7:00 PM in the Media Room on the second floor of Brookhaven Town Hall. Written comments on the draft scoping document were accepted until close of business on July 18, 2018.

Please find enclosed the Final Scoping Document resulting from the public meeting and written comment period. A Draft Environmental Impact Statement (DEIS) will be forwarded for your review and comment once accepted as complete by the Town Board of the Town of Brookhaven.

All correspondence should be forwarded to The Office of the Town Clerk for distribution to the lead agency at:

Town of Brookhaven
OFFICE OF THE TOWN CLERK
One Independence Hill
Farmingville, NY 11738

Thank you for your continued cooperation. If you have any questions or need any further information, please contact this Department.

PEF/pef

Enclosure

Cc: Donna Lent, Town Clerk and Registrar, Office of the Town Clerk
Leigh Rate, Department of Law (w/o enclosure)
Tullio Bertoli, Commissioner, PELM (w/o enclosure)
Applicant: Enrico Scarda, Principal - Crest Bellport, LLC

FINAL SCOPE FOR THE DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)
CREST TOWN CENTER CHANGE OF ZONE APPLICATION
Hamlet of North Bellport, Town of Brookhaven,
Suffolk County, NY
PURSUANT TO CHAPTER 85, ARTICLE XXVI, OF THE CODE OF THE TOWN OF BROOKHAVEN
ON 52.95 ACRES OF PROPERTY ZONED L-INDUSTRIAL-1, LOCATED ON THE EAST SIDE OF BELLPORT STATION ROAD, IN THE HAMLET OF BELLPORT, AND PURSUANT TO TITLE 6, NEW YORK CODE OF RULES AND REGULATIONS (6NYCRR) PART 617.9

July 24, 2018

1.0 INTRODUCTION

This document provides a brief site and project description for the "Crest Town Center Change of Zone Application" and identifies the scope, content and extent and quality of information to be included in the proposed Draft Environmental Impact Statement (DEIS) for this project. The information below is designed to provide the framework for a thorough examination of existing conditions and the potential for adverse environmental impacts from the proposed change of zone, subdivision of land, conceptual site plan and other aspects of the action, and to identify practicable impact prevention and mitigation strategies in accordance with the standards and procedures set forth in 6 NYCRR Part 617, State Environmental Quality Review (SEQRA). This Final Scope also includes the topics and requested information and analyses requested by the Town Board of the Town of Brookhaven in its adopted May 3, 2018 "Positive Declaration" which found that one or more moderate or large impacts may result from the Subject Action and that an Environmental Impact Statement (EIS) addressing identified potential environmental issues must be prepared.

2.0 LOCATION AND DESCRIPTION OF THE PROPOSED ACTION

2.1 Location

The subject 52.95-acre site is located on the north side of Sunrise Highway's (SR 27's) North Service Road; south side of Woodside Avenue (CR 99); east side of Station Road; and west side of South Village Drive in the Hamlet of North Bellport, Town of Brookhaven, Suffolk County, New York. The property is further identified as Suffolk County Tax Map District 200; Section 872; Block 2; Lots 15 and 16 and District 200; Section 899; Block 3; Lots 2.2, 2.3, 2.4 and 7.

The subject site is undeveloped and wooded but is located in an area containing a variety of existing land uses, including: a light industrial subdivision and residential community ("Atlantic Point") to the north of the site on the north side of Woodside Avenue; a major highway transportation corridor (Sunrise Highway and its northern and southern service roads) to the south; a single-family residential neighborhood ("Horizon Village") to the east; and various retail stores, auto repair and autobody shops, a small masonry

business, a warehouse, a Suffolk County Water Authority (SCWA) wellfield, pump station and water storage tower, and a single-family residential neighborhood to the west.

2.2 Project Description

The Applicant, Crest Bellport, LLC, seeks Town Board approval to rezone the subject 52.95-acre vacant and wooded property from L Industrial 1 (L-1) to Planned Development District (PDD) and NH-H Health Facility (NH-H). The requested changes of zone, which are filed under one change of zone application, specifically seek to create a 46.06± acre mixed-use PDD and a 6.88± acre assisted living facility under NH-H zoning. To do this and develop the site as proposed, a subdivision of the property will be required from the Town Planning Board along with the filing of reciprocal easements for site access, on-site traffic circulation, parking and utilities, as well as Site Plan approvals for actual construction.

The proposed 46.06± acre mixed-use PDD will include: a 190-unit residential development consisting of 30 Planned Retirement Community (PRC) 2-bedroom units, as well as 160 Multiple Family (MF) units comprised of: 20 studio apartments at 750 SF per unit, 68 one-bedroom apartments at 900 SF per unit, and 72 two-bedroom apartments at 1,150 SF per unit; 2) a planned retirement community (PRC) consisting of 76 2,500 SF 2-bedroom units with private garages; 3) a proposed 6.88± acre NH-H zone including a 3-story 84-bed assisted living facility with a 62,900± SF building footprint; 4) 33,600 SF of retail; 5) a 4,500 SF restaurant; 6) a 6,805 SF market or retail business; and 7) a two-story mini-storage warehouse facility having a total gross floor area of 119,600 SF.

The north end of the property (37.6 acres or 71 percent of the site) will be developed with the residential uses including the assisted living facility, PRC, and multifamily housing; while, 29 percent of the site (15.34 acres) at the south end of the property will be developed with the mixed commercial uses (mini-storage warehouse facility, restaurant, retail space, and convenience market). The proposed mixed-use PDD will be fully consistent with applicable use requirements. The NHH component of the development will also be substantially consistent with applicable land use zoning standards but the Applicant seeks flexibility in terms of the maximum building height requirement (proposed 50 feet and 3.5 stories where a maximum of 35 feet and 2.5 stories is required); building area (21 percent where a maximum of 20 percent is the standard); road frontage (118 feet where a minimum of 200 feet is required); and minimum side yard setback of 40.5 feet where a 50 feet is required. The requests for flexibility in the planned development design is due in part to the unique but beneficial layout proposed for the NH-H facility and the need to provide a quality viable development that meets various Town goals for housing and assisted living. The project provides many benefits as previously outlined in detail including the purchase and redemption of pine barrens credits (PBCs) to permit the requested development density or payment to the Joseph Macchia open space fund.

2.3 Involved Agencies and Required Permits, Approvals and Reviews

The following is a summary of the identified involved and interested reviewing agencies, as defined by SEQRA, and the permits, approvals and reviews required. Coordination with these agencies by the Town with respect to the scope and content of the DEIS is required and the draft scope has been revised

accordingly, to reflect the comments and recommendations of these agencies and fulfill their informational needs.

Applicable Board/Agency	Permit/Approval/Review Type
Brookhaven Town Board	Change of zone approval
Brookhaven Town Planning Board	Subdivision, Site Plan, Special Permit (if applicable)
Brookhaven Town Building Department	Building permits
Suffolk County Department of Health Services	Wastewater disposal and water supply approval
Suffolk County Department of Public Works	STP connection approval, road work permit (CR 99)
Suffolk County Water Authority	Water supply connection approval
Suffolk County Legislature	STP connection
Suffolk County Planning Commission	Section 239-m Planning Review
New York State DEC	SPDES General (stormwater) Permit, STP connection
New York State Department of Transportation	Road work permit (SR 27 north service road)

3.0 POTENTIAL SIGNIFICANT ADVERSE IMPACTS

3.1 Potential Impacts based on the Town Board's Positive Declaration

The following potential significant adverse impacts were identified within the Town Board's Positive Declaration:

Impacts on Land

- Proposed action may involve construction on, or physical alteration of, approximately 40 acres of pitch pine-oak-heath woodland forested area of the proposed site.
- The proposed action may involve the excavation and removal of more than 1,000 tons of natural material.
- The proposed action may involve construction that continues for more than one year or in multiple phases.
- The proposed action may result in increased erosion, whether from physical disturbance or vegetation removal (including from treatment by herbicides).

Impacts on Surface Water

- The proposed action may affect one or more surface water bodies (e.g., streams, rivers, ponds or lakes) within the boundaries of the South Shore Estuary Reserve including the Mud, Abets, and Hedges Creeks.
- The proposed action may require the construction of new, or expansion of existing, wastewater treatment facilities.

Impacts on Groundwater

- The project location is above the Nassau-Suffolk Sole Source Aquifer, adjacent to a Suffolk County Water Authority (SCWA) Station Road Well Field, within the 0-2 year contributing area to the southernmost wells in the Station Road Well Field 2, and within a Suffolk County Department of Health Services (SCDHS) Water Supply Sensitive Area (WSSA) which is defined in part as: "Areas in close proximity to existing or identified future public water supply wellfields."
- The proposed action is anticipated to utilize approximately 123,043 gallons per day of ground water which will create additional demand on supplies from existing water supply wells.
- Water supply demand from the proposed action may exceed safe and sustainable withdrawal capacity rate of the local supply or aquifer.
- The proposed action may allow or result in residential uses in areas without water and sewer services.
- The proposed action may have the potential to introduce contaminants to ground water or an aquifer.

Impacts on Plants and Animals

- The proposed action may result in a loss of approximately 40 acres of forested Pitch pine oak-heath woodland flora and the associated fauna utilizing the habitat.
- The proposed action may cause reduction in population or loss of individuals of any threatened or endangered species, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.
- The proposed action may result in a reduction or degradation of any habitat used by any rare, threatened or endangered species, as listed by New York State or the federal government.
- The proposed action may cause reduction in population, or loss of individuals, of any species of special concern or conservation need, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.
- The proposed action may result in a reduction or degradation of any habitat used by any species of special concern and conservation need, as listed by New York State or the Federal government.
- The proposed action may result in the removal of, or ground disturbance in, any portion of a designated significant natural Pitch pine-oak-heath woodland community.
- The proposed action may substantially interfere with nesting/breeding, foraging, or overwintering habitat for the predominant species that occupy or use the project site.

Impacts on Open Space and Recreation

- The proposed action may result in a loss of recreational opportunities or a reduction of an open space resource as designated in any adopted municipal open space plan.
- The proposed action may result in an impairment of natural functions, or "ecosystem services", provided by an undeveloped area, including but not limited to storm water storage, nutrient cycling, wildlife habitat.
- The proposed action may eliminate open space or recreational resource in an area with few such resources.
- The proposed project will disturb approximately 40 acres of vacant forest in the North Bellport community.

Impacts on Critical Environmental Areas

- The proposed project is not located within a state or locally listed Critical Environmental Area but is within the South Shore Estuary Reserve and the watershed areas of Mud, Abets, and Hedges Creeks.

Impacts on Transportation

- The proposed action may result in a change to existing transportation systems.
- Projected traffic increase may exceed capacity of existing road network.
- The proposed action may result in the construction of paved parking area for 500 or more vehicles.
- The proposed action will degrade existing transit access.
- The proposed action may alter the present pattern of movement of people or goods.

Impacts on Energy

- The proposed action may cause an increase in the use of any form of energy.
- The proposed action will require a new, or an upgrade to an existing, substation.
- The proposed action will require the creation or extension of an energy transmission or
- supply system to serve more than 50 single or two-family residences or to serve a commercial or industrial use.
- The proposed action may utilize more than 2,500 MWhrs per year of electricity.
- The proposed action may involve heating and/or cooling of more than 100,000 square feet of building area when completed.

Impacts on Noise, Odor, and Light

- The proposed action may result in an increase in noise, odors, or outdoor lighting.
- The proposed action may result in light shining onto adjoining properties.
- The proposed action may result in lighting creating sky-glow brighter than existing area conditions.
- Noise generated during construction will be near a residential community and well-traveled roadways.

Impacts on Human Health

- The proposed action may have an impact on human health from exposure to new or existing sources of contaminants.
- The proposed action may result in excavation or other disturbance within 2000 feet of a site used for the disposal of solid or hazardous waste.
- The amounts of solid wastes to be generated is unknown.

Consistency with Community Plans

- The proposed action is not consistent with adopted land use plans.
- The proposed action is inconsistent with local land use plans or zoning regulations.
- The proposed action is inconsistent with any County plans, or other regional land use plans.
- The proposed action may cause a change in the density of development that is not supported by existing infrastructure or is distant from existing infrastructure.

- The Town of Brookhaven 1996 Comprehensive Land Use Plan and the 2009 Sunrise Highway Corridor Study recommend the subject properties for industrial uses.

Cumulative Impacts

The increased residential development and the commercial development may be growth inducing and could have an adverse cumulative impact on the key intersection of Station Road and the Sunrise Highway (NYS Rt. 27) that could be significant, particularly with respect to traffic. The proposed action will also set an important precedent for future project development under the Planned Development District concept in lieu of industrial development. Cumulative impacts of this and other nearby projects in the area need to be addressed. Alternatives and project mitigation must be considered.

As a result, the project has the potential to result in significant environmental impacts in the following areas: initial construction, land use and zoning, water resources, ecological resources, the South Shore Estuary Reserve, traffic and transportation, open space, energy, noise, odor, light, human health, consistency with community plans, storm water pollution prevention measures, waste management/disposal, and cumulative impacts.

3.2 Other Potential Impacts

In addition to the above topics of concern identified in the Town's Positive Declaration, the following additional topics will be examined in the DEIS.

Impacts on Community Service and Utilities Delivery

Assessment of demands and potential impacts on or to the following community services and utilities:

- Public education services (South Country Central School District)
- Police protection services (Suffolk County Police Department, Fifth Precinct)
- Fire protection services (Brookhaven Fire Department)
- Emergency medical responses (South Country Ambulance Company)
- Water supply and distribution (Suffolk County Water Authority)
- Wastewater collection, treatment and disposal (Suffolk County Sewer Agency)
- Parks, Open Space and Recreation (Review open space plan)
- Electricity delivery (PSEG Long Island)
- Natural Gas delivery (National Grid)
- Solid Waste Disposal and Management and proximity and relationship of project to Brookhaven Landfill

4.0 PROPOSED FORMAT AND CONTENT OF DEIS

The following is an outline of the proposed DEIS content and general topics for each section.

COVERSHEET

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4.0 EXTENT AND QUALITY OF INFORMATION NEEDED

The DEIS will be prepared in conformance with the lead agency-approved Final Scope of work and the standards and specifications outlined in SEQRA Section 617.9, “Preparation and Content of Environmental Impact Statements.” The DEIS is intended to provide important and relevant qualitative and quantitative information and analyses to assist the lead agency (The Town Board of the Town of Brookhaven) and other involved agencies in the SEQRA decision-making process including the ultimate preparation of SEQRA Findings and the issuance of decisions on necessary permits and approvals. The DEIS will be concise but thorough, analytical and not encyclopedic, well documented, accurate, and consistent with the requisite standards and specifications of SEQRA. Separate supplemental studies for traffic, fiscal and economic analyses and any other aspects of the DEIS, will be prepared by qualified specialists and will be appended and referenced accordingly. Technical information may be summarized in the body of the document and supplemental support materials will be attached in a separate appendix.

Information sources for the DEIS include, but are not limited to the following: Soil Survey of Suffolk County, NY; Natural Resources Conservation Service website and database; LIDAR and USGS topographic maps; Suffolk County Groundwater Management Zone Map; Suffolk County Groundwater Contour Map; Town zoning laws, subdivision and site plan regulations and other codes as necessary; GIS generated maps; conceptual site plans and CAD drawings; SEQRA Environmental Assessment Forms Parts 1, 2 and 3/Determination of Significance and the Town's official SEQRA Positive Declaration for this project; NYSDEC's Environmental Mapper, Spills and Site Remediation databases; Suffolk County Water Authority water district monitoring data; adopted Town comprehensive, corridor, area, and hamlet plans; South Shore Estuary Reserve Comprehensive Management Plan and Maps; Suffolk County Sanitary Code; NY Natural Heritage Program survey information; NYSDEC Ecological Communities publication (Edinger et al., 2013); Breeding Bird Survey; Institute of Transportation Engineers ("ITE") publication entitled Trip Generation, 9th Edition; traffic counts; Highway Capacity Manual; NYSDOT accident data; various available published fiscal and economic data; US Census data; Rutgers demographic multipliers; input from consultations with service providers; site and area inspections; and other sources as needed. Topics and sections within the DEIS and the information to be collected and analyzed within are as follows:

Description of the Proposed Project

Project Background, Need, objectives and Benefits

Background

- There will be a brief description of the site and application history including a full description of the existing and historic use of the site, status of current use, site ownership, stage of planning and environmental review, and related background and history.

Public Need and Municipal Objectives

- This section will include the justification for the proposed project in terms of the Town's general goals and goals for the area, including those outlined or may be inferred from the Town zoning code and any applicable recommendations provided in adopted land use plans.
- Public need for the change of zone and proposed land uses will be discussed.
- Population affected and/or benefited by the project will be identified.

Objectives of the Project Sponsor

- The goals and objectives of the project sponsor in pursuing the proposed project will be discussed.

Benefits of the Project

- A discussion of the community benefits expected to accrue from the proposed project, including the provision of new housing opportunities, affordable housing, an "over 55" community, elder care facilities, new mixed commercial uses and associated economic development, new employment opportunities and tax revenues, easy access from major highways and arterials, and preservation of land

through the acquisition of pine barrens credits or payment to the Joseph Macchia open space fund, will be discussed.

Location

- Using appropriate mapping and/or tables, describe the location of the site in terms of adjacent/nearby streets, land uses, zoning and service districts, and list the site's tax map numbers.

Project Design and Layout

- Provide a brief description of the property and the proposed land uses and layout of the project; discuss the proposed change of zone and site plan requirements; indicate gross floor area of each proposed use, the number of dwelling units proposed, the percentage of affordable units to be provided, sizes of proposed dwelling units (SF and number of bedrooms), and building heights; describe basis for subdivision and number of lots being requested; indicate available services and utilities in the area and anticipated connections; identify proposed site access points, site circulation/road system, and proposed parking arrangement; briefly discuss grading, drainage, landscaping, on-site open spaces and/or common areas, and buffers; reference proposed conceptual plan to be attached to DEIS; provide site quantities summary table; and discuss conformance to zoning and any need for variances, if applicable.

Permits, Approvals and Reviews Required

Identify all required permits, approvals and reviews and identify the responsible agencies, departments and boards overseeing these reviews.

<u>Natural Environmental Resources</u>

Topography and Soils

- Existing soil, subsoil and topographic conditions will be analyzed to establish existing conditions, constraints to development, anticipated development related impacts and to identify the measures that will be employed to minimize potential significant adverse environmental impacts or obstacles to development. The existing soil types will be determined pursuant to the Suffolk County Soil Survey and/or USDA online resources.
- Soil borings will be drilled on-site and subsurface soil quality and depth to groundwater for both high elevation and low elevation locations will be provided.
- Discussion of grading and projection of volume of soil to be exported and/or imported to the site.
- The topography of the site will be determined using LIDAR topographic data of the property at one-foot elevation contour intervals.
- Any history of known or possible on-site or nearby contaminated soil or other conditions will be identified.
- Topographic alteration including cut and fill estimates and grading of the site will be considered.
- Discussion of applicability of the need for a Stormwater Pollution Discharge Elimination System (SPDES) general stormwater permit, Stormwater Pollution Prevention Plan (SWPPP), and Erosion and

Sediment Control Plans will be provided and drainage controls will be discussed. (The Construction Impacts section will discuss these issues further.)

- Corrective measures necessary to overcome soil limitations or avoid soil and/or slope-related impacts will be identified.
- Mitigation in terms of erosion control, retention of soils, fugitive dust and related impacts shall be identified. See also "Construction-Related Impacts" below.
- Topography and Soil maps will be provided.

Water Resources (Surface Waters, Wetlands and Groundwater)

- On-site and/or adjacent surface waters or wetlands will be identified and described. The type or quality of the wetland or water feature will be noted per National Wetland Inventory (NWI) designations and it will be indicated if the feature is a natural wetland, recharge basin, retention pond, golf course water feature, etc.) and the distance and buffering between the surface water or wetland and the subject property will be indicated. New York State Department of Environmental Conservation (NYSDEC) freshwater wetlands and NWI wetlands maps will be provided.
- Surface water resources located within the South Shore Estuary Reserve Critical Environmental Area, including Mud, Abets, and Hedges Creeks will be discussed. The watersheds of these creeks will be delineated, drainage patterns (flow lines) will be mapped, and potential impacts will be identified and assessed with an eye toward determining suitable mitigations as needed.
- The site's FEMA flood zone designation will be indicated and a flood zone map will be provided.
- A discussion of the need for a Stormwater Pollution Discharge Elimination System (SPDES) general stormwater permit, Stormwater Pollution Prevention Plan, and Erosion and Sediment Control Plans will be provided and drainage controls will be discussed.
- The Long Island groundwater management zone will be referenced and a discussion of Long Island's sole source aquifer will be provided.
- The DEIS will indicate if the property wholly or partially within any designated public wellfield Water Supply Sensitive Areas (WSSAs), Special Groundwater Protection Areas (SGPAs), the Central Pine Barrens or any local groundwater protection area. Impacts will be assessed and mitigations will be recommended.
- Calculations of projected water demand and sanitary flow will also be provided and discussed further in the "Community Services" section of the DEIS.
- Suffolk County water quality monitoring data for the local water district will be reviewed to determine current groundwater quality and correspondence has been and will continue to be conducted with the SCWA. (The Community Services section of the DEIS will provide additional information and analyses regarding the delivery of a potable drinking water supply to the site).
- The depth to groundwater in key development locations of the site will be determined by use of on-site soil borings and an evaluation of impacts will be considered.
- The expected direction of groundwater flow based on hydrologic interpolation will be identified based on Suffolk County groundwater contour maps.
- A discussion of proposed wastewater collection and treatment will be provided and will be supplemented further in the "Community Services" section of the DEIS.

- Mitigation measures which may reduce potential water resources impacts will be identified.

Ecology

- Existing on-site habitats shall be inventoried through an inspection of the site by a qualified professional to determine the existing vegetation and wildlife, types of habitat and general habitat quality and character. An inventory of flora and fauna observed and expected will be provided in this section of the DEIS.
- In addition, protected native plants, plant and animal species listed as endangered, threatened, special concern (or with other protective status) and significant habitat areas on or near the project site will be identified.
- The NY Natural Heritage Program shall be contacted for site file information concerning habitats, plant and animal species.
- Impact to habitats shall be quantified and discussed qualitatively in terms ecological impact to plants and animals.
- Mitigation measures to reduce and/or avoid potential impacts will be identified and method of implementation determined.
- A habitat map will be provided.

<u>Human Environmental Resources</u>

Land Use, Zoning and Plans

- Using appropriate mapping and/or tables, describe current land use and zoning of site and adjacent properties, and the pattern of land use and zoning in the vicinity. Provide existing land use and zoning maps.
- Discuss existing zoning and permitted land uses and indicate dimensional requirements
- Discuss proposed zoning, permissible uses in the proposed zones and the required dimensional standards for these zones, the need to subdivide and receive site plan/special permit approvals.
- Review and identify applicable goals and recommendations from the 1996 Town Comprehensive Land Use Plan, 2009 Sunrise Highway Corridor Study, 2014 Greater Bellport Plan, other applicable adopted regional, county or local land use, and PDD and NHH Laws, and determine project consistency with these plans and policies.
- Discuss conformance of proposed project to existing or anticipated future land use and zoning patterns of site and vicinity.
- Assess conformance to land use and appropriate land use plans and evaluate consistence with proposed zoning.
- Identify and discuss any variances that may be required, impacts that are expected and methods for mitigating or avoiding impacts.

Community Services and Socioeconomic Analysis

- The existing community services and utilities in the area and the ability of these services to accommodate the proposed project will be described.

- Letters will be sent to community service providers and essential utilities to seek input, identify issues and address concerns.
- Describe demographic character and list/describe services available and districts.
- Obtain existing tax bills and provide a table of taxes paid by subject site, and distribution to the various taxing jurisdictions.
- Estimate cost of each taxing jurisdiction to serve site.
- Using appropriate mapping and/or tables, provide information on the status of the public/community services that serve the subject site and/or vicinity.
- Identified community service providers and facilities, determine current availability, capacities and capabilities, estimate the project's public service demands and the need for service extensions, expansions and upgrades. Determine potential impacts and identify project mitigations and/or impact prevention measures. Correspondence will be sent to each service provider and utility to request general information and identify any issues or concerns that each may have. Meetings will be held between project representatives and representatives of these service providers as needed. Services and utilities to be contacted and evaluated include:
    - Public Schools
    - Police
    - Fire
    - Ambulance
    - Water Supply
    - Wastewater Disposal
    - Parks, Open Space and Recreation
    - Electricity
    - Natural Gas
    - Solid Waste Disposal
- Summarize Fiscal and Economic Analysis and community services investigations.
- Using the estimated assessed value of project, estimate tax generation and distribution for the project.
- List/compare results to existing tax generation and distribution and cost to each taxing jurisdiction to serve project.
- Discuss potential for impact on the various community services available and necessary to serve the site and project; provide information on contact with service providers and/or letters of availability of services.
- Identify possible impacts and the means and methods to avoid or mitigate impacts.

Traffic Impact Study

- Perform a field inventory of existing roadway features including geometry, lane widths, traffic control, pavement markings, parking restrictions, traffic signal timing and phasing.
- Obtain most recent 3-years of available accident data from NYSDOT for the study intersections and adjacent roadways. Tabulate the accident data by severity of injury and type of collision. Identify accident patterns and trends in traffic impact study.

- Collect intersection turning movement counts during the weekday AM (7-9), weekday PM (4-6) commuter peak hours and the Saturday (11-2PM) midday peak hours at the following intersections
  - Station Road at Sills Road (CR 101)
  - Station Road at E Woodside Avenue (CR 99)
  - Station Road at Farber Drive
  - Station Road at Sunrise Highway North Service Road
  - Station Road at Sunrise Highway South Service Road
  - Sunrise Highway North Service Road at Sunrise Highway WB Off Ramp
- Tabulate traffic count data, identify peak hour factors, and adjust data for seasonal variations.
- Identify Other Planned Developments in the nearby area that may affect the study intersections. It is assumed that no more than two other projects will be included in the study.
- Develop future No Build volumes for the study intersections. The volumes will be adjusted to future levels using an annual growth factor obtained from the NYSDOT LITP2000 Study.
- Volumes generated by Other Planned Developments will be added.
- Perform trip generation calculations for the proposed mixed-use development using statistical data contained in ITE Trip Generation, 9th Edition or related data from Nelson & Pope's files. Perform trip generation calculations or obtain existing information for the Other Planned Developments in the project area.
- Prepare a trip distribution and assignment of site generated traffic based on roadway network and existing travel patterns established by the turning movement counts.
- Perform intersection capacity analyses for the study intersections identified above and the site access driveways using Synchro Version 9. The analyses will be completed for Existing, No Build, and Build Conditions for weekday AM, PM and Saturday midday peak hours.
- Identify impacts at these intersections that could have been created by the proposed project. Develop mitigation measures if necessary.
- Prepare a detailed report containing text, tables, and graphics for inclusion in an EIS.

Noise, Odors and Light

- Discuss existing ambient noise conditions during construction and operations; odors; and outdoor lighting issues (skyglow, glare, light trespass, aesthetics, conformance to Town standards, etc.) and concerns on-site and in the area and identify the potential noise, odor and lighting impacts of future development on the surrounding area and identify uses that may be vulnerable to impacts. Include a discussion of both construction and post-construction conditions relative to existing background conditions and identify impact avoidance and/or mitigation techniques to address any concerns. Review project against the Town's Noise Ordinance (Chapter 50 "Noise Control") and lighting standards set forth under Town Code Article XXXIV "Land Development Standards," § 85-862, "Exterior lighting standards."

<u>Other Impacts Evaluated</u>

Construction Related

- Describe potential impacts related to construction noise, clearing, dust generation, erosion and sedimentation, and the import and/or export of soil and discuss possible mitigations.
- Discuss construction vehicle (truck) traffic and identify the most suitable route(s) to take during the construction period to reduce impacts.
- Discuss equipment, materials and on-site worker vehicle staging areas and indicate construction phasing and the hours of the day and days of the week that construction will take place.
- Identify other mitigation measures to reduce construction-related impacts.

Adverse Impacts That Cannot Be Avoided

- Provide a brief listing of those adverse environmental impacts described/discussed previously which are anticipated to occur, which cannot be completely mitigated.

Irreversible and Irretrievable Commitment of Resources

- Provide a brief discussion of those natural and human resources which will be committed to and/or consumed by the proposed project.

Effects on the Use and Conservation of Energy Resources

- Assess the types of energy resources to be used and methods to conserve energy resources, if appropriate.

Growth-Inducing Aspects

- Provide brief discussion of those aspects of the proposed project which might trigger or foster additional future growth in the area.

Cumulative Impacts

- Describe other pending projects in the vicinity and determine potential for cumulative impacts due to implementation of proposed project in combination with others.

<u>Alternatives</u>

SEQRA requires a description and evaluation of the range of reasonable alternatives to the action that are feasible, considering the objectives and capabilities of the project sponsor. As noted in SEQRA, "[t]he description and evaluation of each alternative should be at a level of detail sufficient to permit a comparative assessment of the alternatives discussed". The following alternatives and alternative impact assessments are anticipated:

- Alternative 1: No Action Alternative
  Alternative whereby the site remains in its current condition with no changes
- Alternative 2: Development Under Existing (L-1) Zoning (compared against Development Under Proposed Zoning (Mixed-Use PDD and NH-H))
  - Compare, contrast and evaluate impacts on or from topography and soils, water resources, Critical Environmental Areas, ecology, Land Use, Zoning and Plans, and Transportation/Traffic

- Discuss potential impacts form the loss of industrial-zoned land

Information to be Included in Appendices

All pertinent information and correspondence included, presented or discussed in the document will be included in appendices identified for ease of reference. Such appendices may include, but not be limited to: the adopted Final Scope; Traffic Impact Statement; nitrogen and water budget data; correspondence received from referral requests; cultural resources study, and a Fiscal and Economic Analysis.

5.0 ISSUES DEEMED NOT RELEVANT, NOT ENVIRONMENTALLY SIGNIFICANT OR ADEQUATELY ADDRESSED IN PRIOR ENVIRONMENTAL REVIEW

The intent of the Draft EIS is to disclose and analyze all potential significant adverse environmental impacts associated with the proposed project. The Final Scope has been the subject of a public scoping process in conformance with SEQRA Part 617.8. All public, agency and applicant comments have been incorporated into this Final Scoping document.

This document is intended to fulfill the lead agency requirements to facilitate issuance of a Final Scope in accordance with SEQRA Part 617.8. The document will assist the lead agency in evaluating the Draft EIS for content and adequacy for public review, assists the applicant in understanding the extent and quality of information needed to evaluate the proposed project, and allows the lead agency and involved agencies to obtain the information necessary to reach an informed decision on the project.

Adopted By:

July 24, 2018

Tullio Bertoli
Commissioner, Department of Planning, Environmental, and Land Management

APPENDIX B

FISCAL ECONOMIC IMPACT ANALYSIS REPORT

Nelson Pope & Voorhis
June 21, 2018

NELSON POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

FISCAL & ECONOMIC IMPACT ANALYSIS SUMMARY
Crest Town Center

Bellport, New York

NP&V No. 16212

Submitted to: Crest Bellport, LLC
1201 NYS Route 112
Port Jefferson Station, New York 11776

Submitted by: Nelson, Pope & Voorhis, LLC,
Environmental Planning Consultants
572 Walt Whitman Road
Melville, New York 11747
Phone: (631) 427-5665

June 21, 2018

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ATTACHMENT A – NELSON, POPE & VOORHIS, LLC ECONOMIC ANALYSIS QUALIFICATIONS

FISCAL AND ECONOMIC IMPACT SUMMARY

Crest Town Center

Bellport, New York

NP&V No. 16212

Prepared For:	Crest Bellport, LLC 1201 NYS Route 112 Port Jefferson Station, New York 11776
Prepared By:	Nelson, Pope & Voorhis, LLC 572 Walt Whitman Road Melville, New York 11747 (631) 427-5665
Date:	June 21, 2018

1.0 INTRODUCTION AND PURPOSE

Nelson, Pope & Voorhis, LLC has been requested to prepare a fiscal and economic impact summary for a proposed mixed-use development known as Crest Town Center, located in Bellport, New York. NP&V is a professional environmental and planning firm with qualifications and expertise to prepare fiscal and economic impact analyses, and has a track record of similar completed projects, as well as residential and commercial market analysis and related economic development services to private and municipal clients. The economic qualifications of the firm and personnel are provided in **Attachment A**.

This analysis examines the fiscal and economic impacts that are anticipated to occur through the construction and annual operations of a mixed-use development to be located on the north side of Sunrise Highway's North Service Road, south side of Woodside Avenue (CR 99), east side of Station Road, and west of South Village Drive in the Hamlet of Bellport, Town of Brookhaven, Suffolk County, New York. The location can be more specifically described as Suffolk County Tax Map District 200; Section 872; Block 2; Lots 15 and 16 and District 200; Section 899; Block 3; Lots 2.2, 2.3, 2.4 and 7.

The proposed mixed-use PDD will include: a 160-unit multi-family residential development consisting of 20 studio apartments at 750 square feet (SF) per unit, 80 one-bedroom apartments at 900 SF per unit, and 60 two-bedroom apartments at 1,150 SF per unit; a planned retirement community (PRC) consisting of 106 1,950 SF two-bedroom units plus private garages; 33,600 SF of retail; a 4,500 SF restaurant; a 15,000 SF market; a two-story mini-storage warehouse

facility having a total gross floor area of 119,600 SF; and a three-story assisted living facility with a 44,700 SF building footprint that would contain a total of 130 beds.

The proposed project will provide assisted living facilities, residences for retirees, multifamily apartments for singles, couples and small families, and mixed business uses that will offer existing residents the opportunity to remain in the community (in proximity to family and friends), provide convenient access to certain essential goods and services and create new full- and part-time employment opportunities. Ten percent of the proposed multifamily units will be marketed as "affordable" or "workforce" housing units in accordance with § 85-167, "Affordable and Workforce Housing," "Development requirements," of the Brookhaven Town Code and Article 16-A of the New York State (NYS) General Municipal Law (Long Island Workforce Housing Act). The proposed mix of residential uses will help to diversify the housing stock in the area, not only from an affordability perspective but also by providing housing for the elderly and/or disabled who need daily assistance, as well as retired empty nesters, young adults, couples and some small families.

The proposed project will create strong economic activity by providing jobs and a solid tax base. Consumer activity will ripple through the local community, creating beneficial fiscal and economic impacts throughout Bellport, the Town of Brookhaven, Suffolk County, and the region as a whole. The following analysis examines and quantifies the fiscal and economic impacts that are anticipated to result from the proposed development at Crest Town Center. **Section 2.0** outlines the methodology and the sources of data used to project the fiscal and economic impacts generated in this analysis. **Section 3.0** summarizes the existing fiscal and economic conditions – including enrollment trends/population, budget, and current tax rates and levies for the South Country Central School District (CSD). This section also summarizes the land use and tax base composition, detailed budgets and the current tax rates and levies for both the Town of Brookhaven and Suffolk County. Moreover, this section summarizes the fiscal impacts that are anticipated to result from the proposed project. These include beneficial impacts to the local school district as well as the generation of annual property tax revenues allocated to each of the taxing jurisdictions located within the boundary of the site. Lastly, **Section 3.0** presents a summary of the direct economic impacts, as well as those indirect and induced impacts that are estimated to occur – on output, employment and labor income – during both the five (5)-year construction period, and annually upon stabilized operations of the proposed project. **Section 4.0** outlines the references and sources of information utilized in this analysis.

2.0 METHODOLOGY

Various data and information from federal, state, local, and commercial data sources was used to analyze the existing conditions and projected fiscal and economic impacts stemming from the construction and annual operation of the proposed mixed-use development at Crest Town Center.

Crest Bellport, LLC supplied information regarding the unit mix, construction cost and construction schedule, as well as the estimated rental/lease rates, employment and earnings during the annual operations of the proposed project.

South Country School District (CSD) provides data pertaining to the district budget, enrollment trends and per-pupil education costs.

The Town of Brookhaven and Suffolk County provide information regarding approved budgets and current tax rates for the parcels that comprise the subject property. This tax information was used to compare the existing revenues to those that are projected to be generated upon full build-out of proposed project.

New York State Education Department provides New York State District Report Cards and the Fiscal Accountability Summary reports specific to the South Country CSD. This information allows for an analysis of how the development may affect the school district's enrollment.

New York State Office of Real Property Services both provide data pertaining to the existing tax base and tax revenues for the Town of Brookhaven, New York. This information was used to better understand how local budgets and taxing jurisdictions will be affected by the development of the proposed project.

United States Bureau of Labor Statistics and New York State Department of Labor publish the Occupational Employment Statistics survey. This survey was used to estimate the wages earned among those employed within "construction and extraction" occupations in the Long Island labor market. These wages were assumed for each of the workers responsible for the construction of the proposed project.

United States Census Bureau provides the latest population counts and other pertinent demographic data for the Town of Brookhaven.

Minnesota IMPLAN Group developed an economic impact modeling system called IMPLAN, short for "impact analysis for planning". The program was developed in the 1970s through the United States Department of Agriculture's Forest Service and was privatized in 1993.

IMPLAN is built on a mathematical input-output (I-O) model to express relationships between various sectors of the economy in a specific geographic location. The I-O model assumes fixed relationships between producers and their suppliers based on demand, and the inter-industry relationships within a region largely determine how that economy will respond to change. In an I-O model, the increase in demand for a certain product or service causes a multiplier effect;

increased demand for a product affects the producer of the product, the producer's employees, the producer's suppliers, the supplier's employees, and so on, ultimately generating a total impact in the economy that is greater than the initial change in demand.

The IMPLAN model is a method for estimating local economic multipliers, including those pertaining to production, value-added, employment, wage and supplier data. IMPLAN differentiates in its software and data sets between 440 sectors that are recognized by the United States Department of Commerce. Multipliers are available for all states, counties and zip codes, and are derived from production, employment and trade data from sources including the United States Census Bureau, County Business Patterns, Annual Survey of Government Employment, Annual Survey of Retail Trade; United States Bureau of Labor Statistics, Quarterly Census of Employment and Wages, Consumer Expenditure Survey; United States Department of Labor; Office of Management and Budget; United States Department of Commerce; Internal Revenue Service; United States Department of Agriculture, National Agricultural Statistical Service; Federal Procurement Data Center; and United States Bureau of Economic Analysis, Regional Economic Information System, Survey of Current Business, among other national, regional, state and local data sources.

IMPLAN is widely accepted as the industry standard for estimating how much a one-time or sustained increase in economic activity in a particular region will be supplied by industries located in the region. Federal government agencies such as the Army Corps of Engineers, Bureau of Economic Analysis, Bureau of Land Management, Environmental Protection Agency, Federal Reserve Bank, Fish and Wildlife Service, and National Park Service have used the multipliers to study the local impact of government regulation on specific industries and to assess the local economic impacts of Federal actions. State and local governments including New York State Department of Labor, New York State Division of the Budget, New York State Office of the State Comptroller, New York State Assembly and New York City Economic Development Corporation, have used the multipliers to estimate the regional economic impacts of government policies and projects and of events, such as the location of new businesses within their state, or to assess the impacts of tourism. Likewise, businesses, universities and private consultants have used the multipliers to estimate the economic impacts of a wide range of projects, such as building a new sports facility or expanding an airport; of natural disasters; of student spending; or of special events, such as national political conventions.

NP&V personnel have received formal IMPLAN training through the Minnesota Implan Group and possess the qualifications to project economic impacts for a multitude of project types using this software. For the purpose of this analysis, multipliers specific to socio-economic data in Suffolk County's "Construction of new multi-family residential structures" and "Construction of new commercial structures, including farm structures" industries were analyzed to determine the direct, indirect and induced economic impacts during the construction period of the proposed project. Moreover, multipliers specific to socio-economic data in Suffolk County's "Nursing and community care facilities," "Retail - Miscellaneous store retailers," and "Real Estate" industries were analyzed to determine the direct, indirect and induced economic impacts during the annual operations of the proposed project. A summary of these economic impacts can be found in **Section 3.0** of this analysis.

3.0 SUMMARY OF FISCAL AND ECONOMIC IMPACTS

As noted in **Section 1.0**, this analysis summarizes the existing conditions and the fiscal and economic impacts that are associated with the development of the mixed-use development at Crest Town Center. Fiscal impacts include the generation of property tax revenues and their distribution among local taxing jurisdictions. Economic impacts include direct, indirect and induced benefits on output, employment and associated labor income during the construction phase and during a stabilized year of annual operations.

There currently exists a shortage of quality affordable and senior housing communities in Suffolk County. The current need for such affordable and senior housing communities would be partially addressed through the construction of Crest Town Center. The proposed project will provide assisted living facilities, residences for retirees, multifamily apartments for singles, couples and small families, and mixed business uses that will offer existing residents the opportunity to remain in the community (in proximity to family and friends), provide convenient access to certain essential goods and services and create new full- and part-time employment opportunities. Ten percent of the proposed multifamily units will be marketed as "affordable" or "workforce" housing units in accordance with § 85-167, "Affordable and Workforce Housing," "Development requirements," of the Brookhaven Town Code and Article 16-A of the New York State (NYS) General Municipal Law (Long Island Workforce Housing Act). The proposed mix of residential uses will help to diversify the housing stock in the area, not only from an affordability perspective but also by providing housing for the elderly and/or disabled who need daily assistance, as well as retired empty nesters, young adults, couples, and some small families.

The proposed project will increase the distribution of tax ratables throughout the South Country CSD, the Town of Brookhaven and Suffolk County. Moreover, the proposed project will generate immediate construction jobs as well as permanent employment opportunities for Town and area residents. Such fiscal and economic benefits are most crucial during the current economic state throughout Long Island, New York State and the nation as a whole.

A summary of findings is provided herein, with detailed methodologies and references provided throughout this analysis. This analysis was prepared using methods, data and information that are considered to be industry standard for such fiscal and economic impact analyses.

Definition of Economic Impacts

A *direct impact* arises from the first round of buying and selling. These direct impacts can be used to identify additional rounds of buying and selling for other sectors of the economy and to identify the impact of spending by local households. An *indirect impact* refers to the increase in sales of other industry sectors, which include further round-by-round sales. An *induced impact* accounts for the changes in output and labor income by those employed within the region, resulting from direct and indirect impacts. The *total impact* is the sum of the direct, indirect and induced impacts.

Key Findings

Existing Conditions

- According to the U.S. Census Bureau, there are 488,123 persons residing within 174,647 housing units in the Town of Brookhaven.[1]
- The vast majority of assessed parcels in the Town of Brookhaven are residential properties, comprising 73.8% of the total number of parcels. However, such properties comprise 47.5% of the Town's tax base[2] and cause the greatest burden on community services.
- The Town of Brookhaven adopted a balanced operating budget for the 2017-18 fiscal year, with budgeted expenditures and anticipated revenues of over $294.9 million. This includes both town-wide funds and special district funds. [3]
- Suffolk County created a 2018 operating budget with expenditures of over $3.0 billion and revenues of over $3.8 billion.[4]
- The proposed project is located within the boundaries of the South Country CSD. The latest Census estimates suggest that 88.9% of all school-aged children who are enrolled in school and reside within the school district boundaries attended public schools; the remaining 11.1% of school-aged children attend private schools.
- Student enrollment within the South Country CSD has decreased by 213 students, or 4.7%, over the ten (10) years between 2007-08 and 2016-17.[5]
- According to the New York State School Report Card Fiscal Accountability Summary for the South Country CSD, expenditures averaged $12,596 per general education student and $47,059 per special education student during the 2015-16 academic year. During this year, 662 students, or 13.2% of the students within South Country CSD, were enrolled in the special education program.[6]
- The South Country CSD adopted a balanced budget for the 2017-18 academic year, with revenues and expenditures totaling $129,595,729.[7]
- Unemployment has decreased substantially since its peak in 2010. As of December 2017, approximately 11,200 persons – 4.5% of the Town's labor force – are unemployed. While it is important to note that this data has not been seasonally adjusted, such trends are nonetheless slightly higher than that of Long Island as a whole, and New York State.[8]
- The subject property is currently taxed at a rate of $339.334 per $100 of assessed valuation. This translates into a current generation of $84,572 in property tax revenues.[9] The existing distribution of tax revenues is shown in **Table 1**.

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[1] 2012-2016 American Community Survey 5-Year Estimates, via the U.S. Census Bureau.
[2] New York State Office of Real Property Services, 2016 Annual Assessment Rolls, 2016 Parcel Counts by Individual Property Class Code.
[3] Town of Brookhaven, "*2018 Adopted Operating Budget,*" November 16, 2017.
[4] Suffolk County, "2018 Recommended Operating Budget, Narrative and Appropriations, County of Suffolk, NY, Volume No.1, 2017."
[5] New York State Department of Education.
[6] New York State Department of Education.
[7] South Country CSD.
[8] New York State Department of Labor.
[9] Town of Brookhaven Receiver of Taxes.

Table 1
EXISTING TAX REVENUES

Taxing Jurisdiction	Current Tax Rate (per $100 Assessed Valuation)	Current Tax Revenue	Percent of Total Tax Revenue
School Taxes	**238.187**	**$59,363**	**70.2%**
South Country Central School District	225.341	$56,162	66.4%
South Country Central School District - Library	12.846	$3,202	3.8%
County Taxes	**42.319**	**$10,547**	**12.5%**
Suffolk County	2.545	$634	0.7%
Suffolk County - Police	39.774	$9,913	11.7%
Town Taxes	**23.315**	**$5,811**	**6.9%**
Town - Town Wide Fund	5.129	$1,278	1.5%
Highway - Town Wide Fund	1.463	$365	0.4%
Town - Part Town Fund	2.032	$506	0.6%
Highway - Part Town Fund/Snow Removal	14.691	$3,661	4.3%
Other Taxes	**35.513**	**$8,851**	**10.5%**
New York State MTA Tax	0.144	$36	0.0%
2004 $100M Bond Act and Open Space	1.949	$486	0.6%
Brookhaven Fire Districts	21.178	$5,278	6.2%
Brookhaven Lighting Districts	1.235	$308	0.4%
South Country Ambulance District	7.475	$1,863	2.2%
Real Property Tax Law	2.877	$717	0.8%
Out of County Tuition Tax	0.655	$163	0.2%
TOTAL: ALL TAXING JURISDICTIONS	**339.334**	**$84,572**	**100.0%**

Source: Town of Brookhaven Receiver of Taxes; Analysis by Nelson, Pope & Voorhis, LLC.

Impacts on Population

- An analysis of housing occupancy estimates allows for the determination of the number of residents and school aged children that would likely result from the proposed project. This derivation of the projected number of school aged children is based on standard demographic multipliers published by the Center for Urban Policy Research at Rutgers University, which are based on the number of bedrooms, type of building and approximate rent. These data are important in projecting fiscal impacts to the school district as related to tax revenue and cost of education.
- The project is proposed to include the development of a 160 multi-family residential units, 106 two-bedroom PRC units, and a 130-bed assisted living facility. Such housing is projected to create a total of 594 residents. Of this, it is projected that 22 persons will be school-aged children between the ages of five (5) and 17 years old, as seen in **Table 2**.

Table 2
IMPACT ON POPULATION

	Apartment Units			Assisted Living	PRC Units[10]	Total: All Units
	Studio Units[11]	1-BR Units[12]	2-BR Units[13]			
Number of Units	20	80	60	130	106	396
Average Infants/Toddlers per Household	0.08	0.08	0.19	--	--	--
Average School-Aged Children per Household	0.08	0.08	0.23	--	--	--
Average Adults per Household/Bed	1.51	1.51	1.89	1	1.5	--
Projected New Residents	**34**	**133**	**138**	**130**	**159**	**594**
Infants/Toddlers	2	6	11	0	0	19
School-Age Children	2	6	14	0	0	22
Adults	30	121	113	130	159	553

Source: Center for Urban Policy Research at Rutgers University; Analysis by Nelson, Pope & Voorhis, LLC.

Anticipated Fiscal Impacts

- For taxing purposes, the total estimated market valuation of the proposed project is $5.5 million. This is based upon the net operating income of each component of the proposed project.[14] After applying a capitalization rate of 0.1 and an equalization rate of 0.90%, the estimated assessed valuation of the proposed project upon full build-out and occupancy is approximately $495,000.
- At full build-out, the proposed project is projected to generate over $1.6 million in annual taxes. This represents a net increase of over $1.595 million per year when compared to existing site conditions. The distribution of tax revenues is shown in **Table 3**.

[10] National Association of Home Builders and The MetLife Mature Market Institute. "*Housing for the 55+ Market: Trends and Insights on Boomers and Beyond*," April 2009.

[11] It is important to note that the Center for Urban Policy Research at Rutgers University does not publish residential demographic multipliers for studio units. As such, and for the purpose of this analysis, a conservative estimate assumes that the studio units will generate the same number of school-aged children as the one (1)-bedroom units.

[12] The demographic multiplier per housing unit assumes a renter-occupied 1-BR residence within a structure type of 5+ units, with rent of more than $1,000 per month.

[13] The demographic multiplier per housing unit assumes a renter-occupied 2-BR residence within a structure type of 5+ units, with rent of more than $1,100 per month.

[14] Net operating income of $2,000,000 for the residential component of the project, $2,000,000 for the commercial component of the project, and $1,500,000 for the assisted living component of the project provided by Crest Bellport, LLC, in December 2017.

Table 3
ANTICIPATED TAX REVENUE GENERATION

Taxing Jurisdiction	Current Tax Revenue	Projected Tax Revenue	Change in Tax Revenue	Percent of Total Tax Revenue
School Taxes	**$59,363**	**$1,179,026**	**$1,119,662**	**70.2%**
South Country Central School District	$56,162	$1,115,438	$1,059,276	66.4%
South Country Central School District - Library	$3,202	$63,588	$60,386	3.8%
County Taxes	**$10,547**	**$209,479**	**$198,932**	**12.5%**
Suffolk County	$634	$12,598	$11,963	0.7%
Suffolk County - Police	$9,913	$196,881	$186,968	11.7%
Town Taxes	**$5,811**	**$115,409**	**$109,598**	**6.9%**
Town - Town Wide Fund	$1,278	$25,389	$24,110	1.5%
Highway - Town Wide Fund	$365	$7,242	$6,877	0.4%
Town - Part Town Fund	$506	$10,058	$9,552	0.6%
Highway - Part Town Fund/Snow Removal	$3,661	$72,720	$69,059	4.3%
Other Taxes	**$8,851**	**$175,789**	**$166,938**	**10.5%**
New York State MTA Tax	$36	$713	$677	0.0%
2004 $100M Bond Act and Open Space	$486	$9,648	$9,162	0.6%
Brookhaven Fire Districts	$5,278	$104,831	$99,553	6.2%
Brookhaven Lighting Districts	$308	$6,113	$5,805	0.4%
South Country Ambulance District	$1,863	$37,001	$35,138	2.2%
Real Property Tax Law	$717	$14,241	$13,524	0.8%
Out of County Tuition Tax	$163	$3,242	$3,079	0.2%
TOTAL: ALL TAXING JURISDICTIONS	**$84,572**	**$1,679,703**	**$1,595,131**	**100.0%**

Source: Town of Brookhaven Receiver of Taxes; Analysis by Nelson, Pope & Voorhis, LLC.

- Approximately 95.1% of all school-aged children who are enrolled in school and reside within the school district boundaries attended public schools; the remaining 4.9% of school-aged children attend private schools. For the purpose of this analysis, and when applying this factor to the 22 school-aged children projected to reside within the proposed project, it is estimated that two (2) students will attend private schools; the remaining 20 students are likely to attend public schools within the South Country CSD.
- The estimated 20 public school-aged children projected from the development will result in additional costs to the South Country CSD; however, this cost will be offset by the school tax revenue generated by the proposed project, with a substantial surplus that will benefit the school district as noted in review of **Table 4** below.
- The ratio of special education students to the total enrollment within the South Country CSD is approximately 13.2%. For lack of any other statistics to use as a basis for projection, it is assumed that the portion of special education students will remain constant with the development of the proposed project. When applied to the estimated 20 school-aged children that are projected to attend public schools, it is anticipated that 17 of these students would be enrolled within the general education program, while three (3) of these students would be enrolled within the special education program within South Country CSD.

- According to the New York State School Report Card, Fiscal Accountability Supplement for South Country CSD, expenditures averaged $12,596 per general education student and $47,059 per special education student during the 2015-16 academic year.[15] Given these assumptions, it is estimated that the 20 students will result in additional costs to the South Country CSD amounting to approximately $355,309 per academic year.
- As seen in **Table 3**, the proposed project is anticipated to levy tax revenues for the South Country CSD, estimated to total over $1.1 million per year. These property tax revenues would cover all associated expenses incurred by the 20 public-school students, resulting in a net surplus revenue to the school district of over $760,000 per year. This net revenue could ease the district's need to tap into additional fund balances and could also help alleviate an increased burden on other taxpayers throughout the district. This is shown in **Table 4**.

TABLE 4
FISCAL IMPACT ON SCHOOL DISTRICT

Parameter	General Education	Special Education	Total: All Students
Student Enrollment: Existing Conditions	4,371	662	5,033
Percentage of Enrollment: Existing Conditions	86.8%	13.2%	100.0%
Number of Additional Students in Public Schools: Proposed Project	17	3	20
Expenditure per Pupil: Existing Conditions	$12,596	$47,059	--
Additional Expenditures: Proposed Project	$214,132	$141,177	$355,309
Projected Tax Revenue Allocated to School District: Proposed Project	--	--	$1,115,438
Net Additional Revenue	--	--	$760,129

Source: South Country CSD; New York State Education Department; Analysis by NP&V.

Economic Impacts of Construction

A detailed analysis of direct, indirect and induced impacts generated during the construction period is outlined below. It is important to note that each of these impacts are temporary and are projected to occur only while the proposed project is being constructed.

- For the purpose of this analysis, it is anticipated that construction of the proposed project will commence in the beginning of 2020, with the construction period anticipated to occur over a period of four (4) to five (5) years. For the purpose of this analysis and for projecting the economic impact of construction, it is assumed that the construction period will culminate in the beginning of 2025.[16]

[15] This data reflects the most recently published data as of the date of submission of this analysis.
[16] Construction schedule provided by Crest Bellport, LLC, in June 2018.

- The proposed project is projected to represent approximately $105 million[17] in construction costs over the five (5)-year construction period.[18] This includes costs associated with land development, site work and building construction. This $105 million in direct annual output is projected to generate an indirect impact of over $28.6 million, and an induced impact of an additional $46.8 million, bringing the total economic impact on output to over $180.4 million during the five (5)-year construction period.[19]
- During the construction period, direct employment refers to the number of short-term jobs necessary to complete the construction of the proposed project. The construction period is anticipated to generate 148.8 full time equivalent (FTE) jobs, which are anticipated to last the entire duration of the five (5)-year construction period.
- The 148.8 FTE jobs created during the construction period will have an indirect impact of 193.3 FTE employees and an induced impact of 322.8 FTE employees in other industry sectors, bringing the total impact of the five (5)-year construction period to 664.9 FTE jobs.[20] This job creation – direct, as well as indirect and induced – is most crucial to Long Island's economy, and presents opportunities for persons who remain unemployed throughout the region.
- During the construction period, direct labor income refers to the annual earnings, wages, or salary paid to each of the workers responsible for the construction of the proposed project. Labor income typically comprises approximately 50% of the cost of residential construction, and 60% of the cost of commercial construction; the remaining portion represents the cost of materials.[21]

[17] For the purpose of this analysis, this figure and all other figures in the construction portion of this analysis reflect 2018 dollars, the year in which construction is assumed to commence.
[18] Construction costs provided by Crest Bellport, LLC, in December 2017. It is important to note that all costs are estimates based upon market conditions as of the date of preparation of this analysis.
[19] According to IMPLAN, a multiplier of 1.543587 represents the total dollar change in output that occurs in all industries for each additional dollar of output delivered to final demand through the "Construction of new commercial structures, including farm structures" (IMPLAN Sector 57), and a multiplier of 1.690545 represents the total dollar change in output that occurs in all industries for each additional dollar of output delivered to final demand through the "Construction of new multi-family residential structures" (IMPLAN Sector 60) in Suffolk County, New York.
[20] According to IMPLAN, a multiplier of 10.628123 represents the total change in the number of jobs that occurs in all industries for each additional one million dollars of output delivered to final demand through the "Construction of new commercial structures, including farm structures" (IMPLAN Sector 57), and a multiplier of 10.700009 represents the total change in the number of jobs that occurs in all industries for each additional one million dollars of output delivered to final demand through the "Construction of new multi-family residential structures" (IMPLAN Sector 60) in Suffolk County, New York.
[21] Construction/renovations labor and materials estimates per architectural design group Hawkins, Webb, Jaeger, PLLC.

- Labor income is projected to total $75,289 per year, per employee.[22] When applied to the five (5)-year construction period, this represents approximately $376,444 per employee, and $56,000,000 in collective earnings among the 148.8 FTE employees. This labor income is projected to have an indirect impact of over $11.6 million and an induced impact of over $16.6 million, bringing the total economic impact of the five (5)-year construction period to nearly $84.2 million in labor income.[23]

A summary of key economic findings projected to occur during the five (5)-year construction period is provided in **Table 5**.

Table 5
SUMMARY OF KEY ECONOMIC FINDINGS
DURING FIVE (5)-YEAR CONSTRUCTION PERIOD

Impact Type	Output (Total Revenue)[24]	Employment (Total Number of FTE Jobs)[25]	Labor Income (Total Wages)
Direct Impact	$105,000,000	148.8	$56,000,000
Indirect Impact	$28,629,559	193.3	$11,563,824
Induced Impact	$46,859,411	322.8	$16,627,498
Total Impact	$180,488,970	664.9	$84,191,322

Source: Data provided by Crest Bellport, LLC; Analysis by Nelson, Pope & Voorhis, LLC, via IMPLAN software.

Economic Impacts of Annual Operations

A detailed analysis of direct, indirect and induced impacts generated annually during operations is outlined below. It is important to note that each of these impacts is permanent and on-going and they are projected on an annual basis, assuming continued stabilized operations.

[22] New York State Department of Labor's Occupational Employment Statistics survey reports a mean wage of $68,900 among those employed within construction and extraction occupations in the Long Island labor market. Data was collected between November 2013 and May 2016, and then updated to the first quarter of 2017 by making cost-of-living adjustments. An additional annual inflation factor of three percent (3%) was applied to the average wage, to reflect wages at the commencement of the construction period – estimated to occur in 2020 for the purpose of this analysis.

[23] According to IMPLAN, a multiplier of 0.672146 represents the total dollar change in labor income of households employed by all industries for each additional dollar of output delivered to final demand through the "Construction of new commercial structures, including farm structures" (IMPLAN Sector 57), and a multiplier of 0.644324 represents the total dollar change in labor income of households employed by all industries for each additional dollar of output delivered to final demand through the "Construction of new multi-family residential structures" (IMPLAN Sector 60) in Suffolk County, New York..

[24] The direct impact of output is equal to the total construction cost of the proposed project over the five (5)-year construction period.

[25] For the purpose of this analysis, it is assumed that the persons employed during the construction of the proposed project will be employed for a duration of five (5) years, from the commencement until the culmination of the construction period.

- It is assumed that the proposed project will begin the operational phase of development upon the completion of the five (5)-year construction period, anticipated to occur in the beginning of 2025. For the purpose of this analysis, the first year of stabilized operations is assumed to occur in 2026.
- Annual output will be generated in the form of monthly rental income from the 160 apartment units and 106 PRC units, which are estimated at $2,500 per month, per unit.[26] Likewise, output will be generated in the form of monthly fees of $3,500 per unit, for the assisted living and $30 per square foot of commercial space. Given these assumptions, the proposed project will generate $18.6 million[27] in annual operational revenue.
- According to the International Council of Shopping Centers and the Urban Land Institute, retailers within a given super community/community shopping center in the United States generate median sales of $284.30 per square foot of gross leasable area. When applied to the retail/restaurant/market space proposed for Crest Town Center, this yields an additional $15.1 million in estimated sales revenue.
- In total, it is estimated that the proposed project will generate over $33.7 million in annual output. The annual operational revenues[28] are projected to generate an indirect impact of nearly $7.4 million and an induced impact of over $6.5 million per year. This additional output is generated through round-by-round sales made at various merchants in other sectors of the regional economy. These include local retailers, service providers, banks, grocers, restaurants, financial institutions, insurance companies, health and legal services providers, and other establishments in the region.
- The sum of the direct, indirect and induced impacts results in a total economic impact on output of over $39.8 million during annual operations.[29]

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[26] Assumptions pertaining to monthly rental rates and annual lease rates provided by Crest Bellport, LLC, in December 2017. It is important to note that all costs are estimates based upon market conditions as of the date of preparation of this analysis.

[27] For the purpose of this analysis, this figure and all other figures in the operations portion of this analysis reflect 2026 dollars, the year in which stabilized operations are assumed.

[28] The direct operational revenues include both annual tenant leases and sales revenues, totaling approximately $33.7 million per year. It is important to note however, that the effect of retail/wholesale margins must be taken into account when projecting the economic impact of sales occurring within retail establishments. Margins represent the difference between producer and purchaser prices, or the mark-up that each retailer applies to a given product over and above the cost to produce. For the purpose of this analysis, margins specific to retail establishments in Suffolk County, New York, were applied to the economic impact of the $15.1 million in sales revenues occurring within the retailers proposed for development. This results in a direct impact of retail sales equal to approximately $7.2 million per year among the retail establishments – representing the "profit" among retail establishments at Crest Town Center. The difference between these figure and the annual sales revenues of $15.1 million is attributed to the cost to produce the items being purchased at each establishment.

[29] According to IMPLAN, a multiplier of 1.737801 represents the total dollar change in output that occurs in all industries for each additional dollar of output delivered to final demand by "Retail – Miscellaneous store retailers" (IMPLAN Sector 406), a multiplier of 1.547652 represents the total dollar change in output that occurs in all industries for each additional dollar of output delivered to final demand by "Real estate" (IMPLAN Sector 440), and a multiplier of 1.719239 represents the total dollar change in output that occurs in all industries for each additional dollar of output delivered to final demand by "Nursing and community care facilities" (IMPLAN Sector 483) in Suffolk County, New York.

- The proposed project is anticipated to generate 95.0 FTE jobs on site.[30] The 95.0 FTE jobs will have an indirect impact of 52.2 FTE employees and an induced impact of 44.0 FTE employees in other industry sectors, bringing the total economic impact of employment to 191.2 FTE jobs during annual operations.[31]
- The 95.0 FTE jobs will generate a total of $6.85 million in collective labor income. This labor income will have an indirect impact of over $2.7 million and an induced impact of over $2.3 million bringing the total economic impact of labor income to nearly $12.0 million during annual operations.[32]

A summary of key economic findings projected to occur during annual operations is provided in **Table 6**.

Table 6
SUMMARY OF KEY ECONOMIC FINDINGS DURING ANNUAL OPERATIONS

Impact Type	Output (Annual Revenue)	Employment (Number of Annual FTE Jobs)	Labor Income (Annual Wages)
Direct Impact	$25,867,238	95.0	$6,850,000
Indirect Impact	$7,392,177	52.2	$2,710,978
Induced Impact	$6,586,913	44.0	$2,352,364
Total Impact	$39,846,328	191.2	$11,913,342

Source: Data provided by Crest Bellport, LLC; Analysis by Nelson, Pope & Voorhis, LLC, via IMPLAN software.

[30] Assumptions pertaining to the direct employment provided by Crest Bellport, LLC, in December 2017. It is important to note that all assumptions are estimates based upon market conditions as of the date of preparation of this analysis.

[31] According to IMPLAN, a multiplier of 21.203418 represents the total change in the number of jobs that occurs in all industries for each additional one million dollars of output delivered to final demand by "Retail – Miscellaneous store retailers" (IMPLAN Sector 406), a multiplier of 10.938552 represents the total change in the number of jobs that occurs in all industries for each additional one million dollars of output delivered to final demand by "Real estate" (IMPLAN Sector 440), and a multiplier of 16.990810 represents the total change in the number of jobs that occurs in all industries for each additional one million dollars of output delivered to final demand by "Nursing and community care facilities" (IMPLAN Sector 483), in Suffolk County, New York.

[32] According to IMPLAN, a multiplier of 0.954306 represents the total dollar change in labor income of households employed by all industries for each additional dollar of output delivered to final demand by "Retail – Miscellaneous store retailers" (IMPLAN Sector 406), a multiplier of 0.364776 represents the total dollar change in labor income of households employed by all industries for each additional dollar of output delivered to final demand by "Real estate" (IMPLAN Sector 440), and a multiplier of 0.865005 represents the total dollar change in labor income of households employed by all industries for each additional dollar of output delivered to final demand by "Nursing and community care facilities" (IMPLAN Sector 483) in Suffolk County, New York.

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ATTACHMENT A

Nelson, Pope & Voorhis, LLC
Economic Analysis Qualifications

ABOUT NELSON, POPE & VOORHIS...

ENVIRONMENTAL PLANNING CONSULTING

MUNICIPAL PLANNING
SEQRA COMPLIANCE
HARBOR MANAGEMENT PLANNING
FEASIBILITY STUDIES
DUE DILIGENCE ASSISTANCE
REGIONAL PLANNING
ECONOMIC PLANNING
ENVIRONMENTAL SITE ASSESSMENT
ENVIRONMENTAL SCIENCE & ANALYSIS
WETLAND PERMITTING
STORM WATER MANAGEMENT PLANS
WATERFRONT & COASTAL ZONE PROJECTS
MAPPING
WATERSHED MANAGEMENT & WATER SUPPLY
PERMITTING & PROCESSING
SUSTAINABILITY & LEED
PROJECT PLANNING & SUPPORT

Nelson, Pope & Voorhis, LLC was formed in 1997 and has grown in capabilities and size since that time. The merging of Charles Voorhis & Associates (13 year history) with Nelson & Pope (a 50-year tradition in engineering and related services) created an environmental planning firm with a wealth of experience to bring to complex environmental problem solving, planning and feasibility, resource assessment and site investigations.

Nelson, Pope & Voorhis serves governmental and private sector clients in preparing creative solutions in the specialized area of complex environmental project management and land use planning and analysis.

Nelson, Pope & Voorhis has the benefit of knowledge of local issues, local resources, and the passion to provide the very best solutions and strategies for the local area. This provides unparalleled knowledge of the application of the community planning process, comprehensive planning and SEQRA Administration. The result is a team of highly compatible land use professionals that will get the job done in a manner that ensures real and implementable solutions.

Nelson, Pope & Voorhis employees are recognized as experts in environmental, land use and planning issues and have provided consulting services to various municipalities. NP&V encourages continuing education through participation in conferences and seminars for all staff and holds regular training luncheons utilizing APA and other training packages.

Nelson, Pope & Voorhis has a capable staff of professionals, including planners and economic analysts, ecologists, hydrologists, wetlands specialists and environmental professionals. When integrated with technical staff of Nelson & Pope, the team is expanded to include civil, sanitary and transportation engineers and land surveyors.

Nelson, Pope & Voorhis would appreciate the opportunity to discuss how we can assist you in achieving your goals. We are committed to providing quality environmental, planning and consulting services to all clients. This statement of qualifications is an introduction to the many services we provide with a focus on municipal services; the following pages contain a more detailed presentation of services offered by Nelson, Pope & Voorhis, as well as a sampling of completed projects and key staff resumes.

Call us at (631) 427-5665. We welcome the opportunity to serve your environmental, planning and consulting needs.

NELSON POPE & VOORHIS

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More About Nelson, Pope & Voorhis...

Environmental Planning Consulting

Municipal Planning
SEQRA Compliance
Harbor Management Planning
Feasibility Studies
Due Diligence Assistance
Regional Planning
Economic Planning
Environmental Site Assessment
Environmental Science & Analysis
Wetland Permitting
Storm Water Management Plans
Waterfront & Coastal Zone Projects
Mapping
Watershed Management & Water Supply
Permitting & Processing
Sustainability & Leed
Project Planning & Support

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Charles Voorhis is managing partner and is a member of the American Institute of Certified Planners (AICP) and is a Certified Environmental Professional (CEP), having over 30 years of experience in environmental planning on Long Island and the New York area. Mr. Voorhis oversees the business in terms of management, marketing and expertise, provides expert testimony in hearings and court proceedings, and ensures that client needs are served to the best of the firm's ability.

The firm has significant expertise in applied use of the State Environmental Quality Review Act (SEQRA) with understanding of the practical and legal use of this law from both the private and municipal perspective. Staffing includes environmental professionals assembled to work together as a team with complementary expertise and interests. NP&V personnel maintain wildlife collection permits in New York State, and are active contributors to the Long Island Geographic Information System (GIS) user group meetings and publications.

The firm has developed a number of copyright protected computer models for environmental analysis in the areas of: wildlife and ecology; water budget analysis and groundwater impacts; economic and market analysis; and stormwater impact prediction. The reports and graphics generated for projects are high in quality and professionally prepared through the use of state-of-the-art technology in digital aerial photography, geocoding and mapping of site features using differential global positioning systems (GPS), AutoCAD analysis/mapping, ESRI geographic information systems (GIS) programs including ArcMap and 3D Analyst and Spatial Analyst, custom spreadsheet models for regional land use impact assessment, and related technological tools for advanced data management and word processing. The seamless integration of environmental and engineering services with Nelson & Pope is accomplished by direct communication and computer networking to ensure that projects are managed through the review process to the development stage.

NP&V features three divisions, created to better serve clients with high quality, innovative and responsive consulting

Nelson Pope & Voorhis

The Three Divisions of NP&V...

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SEQRA Compliance
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Due Diligence Assistance
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The division of **ENVIRONMENTAL & COMMUNITY PLANNING** specializes in comprehensive local and regional planning. Technology is key in today's planning field and NP&V continues to keep pace with the most current tools available for planning applications. Use of Geographic Information System (GIS) software, 3D Analyst, ArcScene and Spatial Analyst, as well as CommunityViz (3-D simulation and analysis software), architectural SketchUp (modeling software), AutoCAD, and planning and analysis software and spreadsheets, results in rapid, accurate and high quality data, analysis, illustration and reporting. This division conducts planning studies, revitalization plans, community development/public participation activities, and human resource analysis including noise, air, demographic, socio-economic and visual resource assessment (including 3D simulations, photo simulations and shadow studies). The division is directed by Kathryn Eiseman, AICP and includes planners, economic analysts and GIS specialists with environmental, planning and architectural backgrounds.

The division of **ENVIRONMENTAL RESOURCE & WETLANDS ASSESSMENT** provides quality services in the preparation of Environmental Impact Statements (EIS's), Environmental Assessments (EA's), planning and zoning law review and preparation, stormwater permitting and erosion control compliance, and wetland delineation, assessment, mitigation and permitting. This division is headed by Carrie O'Farrell, AICP and has a capable staff including environmental scientists, wetland ecologists and environmental professionals to ensure timely delivery of quality products.

The division of **PHASE I/II ASSESSMENTS & REMEDIATION** performs Phase I and II Environmental Site Assessments (ESA's), voluntary cleanup, brownfields cleanup, RI/FS and all aspects of site remediation and investigation. The division is headed by Steven McGinn, CEI a member of Nelson & Pope's environmental services branch for 13 years with significant experience in preparation of Phase I/II ESA's field investigations and remediation. This division includes a staff of hydrogeologists and environmental professionals and coordinates required field equipment and laboratory services. NP&V has performed large and small assessments and provides the fastest possible turnaround to meet due diligence periods and deadlines which are often a factor in real estate transactions. NP&V Phase I/II ESA services are known and accepted by lending institutions throughout the tri-state area. NP&V owns, maintains and operates GPR (Ground Penetrating Radar) and PowerProbe units to provide expanded services in site investigations. A description of NP&V qualifications and resumes of personnel proposed for the project and specific project experience is included in the

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Summary of Services...

Environmental Planning Consulting

Municipal Planning
SEQRA Compliance
Harbor Management Planning
Feasibility Studies
Due Diligence Assistance
Regional Planning
Economic Planning
Environmental Site Assessment
Environmental Science & Analysis
Wetland Permitting
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What we do at Nelson, Pope & Voorhis...

- **SEQRA Compliance and Environmental Analysis:** Environmental impact statements (EIS); assessment forms (EAF); ecological and wildlife studies; noise and air emission impact studies; and compliance with Federal, State & local environmental regulations & laws.

- **Municipal Planning:** Full environmental and planning review services for municipalities including site plan and subdivision review, zoning board review and SEQRA Administration.

- **Regional and Community Planning:** Conceptual site development planning; public outreach: visioning workshops and charrettes; development alternatives; zoning; site yield studies; build-out analysis; visual analysis (3-D modeling; photo simulations) and comprehensive regional and hamlet planning studies.

- **Feasibility and Due Diligence Assistance:** Comprehensive research into site development related issues affecting project implementation, timing and costs.

- **Economic Planning:** **Fiscal** and economic impact analyses, market analyses & feasibility studies, economic development strategies, niche market and branding planning, tax base analysis, housing incentives and programs and community development.

- **Grants Administration:** Preparation of federal and state funded municipal grant applications, project management; including the preparation of all reporting documents.

- **Environmental Site Assessment:** Phase I, II and III environmental site assessments; geophysical surveys; remedial investigation and feasibility studies; Brownfield investigations; voluntary cleanup program; oil spill closure; asbestos and lead testing and abatement.

- **Soil Borings & Subsurface Investigations:** Soil borings, Ground Penetrating Radar; groundwater investigations, modeling; and flow studies; monitoring well and peizometer installation.

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Summary of Services…

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- **Storm Water Management Plans (SWPPPS):** Design of management plans for storm water and erosion control compliance with latest Federal and State regulations; preparation and processing of NOI; and site compliance during construction…

- **Waterfront and Coastal Zone Projects:** Planning; permitting of waterfront improvement projects; water quality data management and studies; and docking facilities…

- **Mapping:** Inventory of physical features; GIS mapping; data management and analysis; and ground penetrating radar for identification of subsurface conditions…

- **Watershed Management and Water Supply:** Comprehensive regional watershed and water supply management and planning studies…

- **Permitting and Processing:** Preparation and processing of environmental applications for submittal; client representation before municipal agencies and departments and expert testimony for legal support and hearings…

- **Wetland Permitting:** Flagging and identification of fresh water and tidal wetlands; preparation of wetland permitting; and wetland restoration plans.

Nelson, Pope & Voorhis has the benefit of knowledge of local issues, local resources, and the passion to provide the very best solutions and strategies for the local area. This provides unparalleled knowledge of the application of the community planning process, comprehensive planning and SEQRA Administration. The result is a team of highly compatible land use professionals that will get the job done in a manner that ensures real and feasible solutions.

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Economic and Fiscal Impact Analysis, Demographic and Community Needs Assessments

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Storm Water Management Plans
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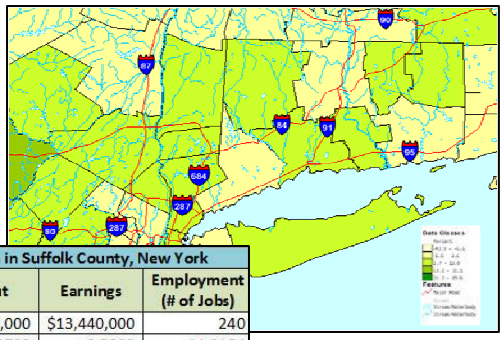
- Fiscal Analysis
- Economic Impact Analysis
- Economic Development Strategies
- Market Positioning & Branding
- Main Street Revitalization
- Comprehensive Community Needs Assessments
- Socioeconomic Analysis
- Demographic analysis
- Tax Base Analysis



NAICS CODE 230000: Construction in Suffolk County, New York			
	Output	Earnings	Employment (# of Jobs)
Direct Impact	$33,600,000	$13,440,000	240
RIMS Multiplier	1.9793	0.5803	14.0154
Indirect and Induced Impact	$66,504,480	$7,799,232	100
Total Impact	**$100,104,480**	**$21,239,232**	**340**

Many of our clients know of our quality services in tax revenue and demographic impact analysis including demographic and school district impact assessments. This expertise combined with our expert use of Geographic Information System (GIS) and census data has allowed NP&V to complete quality fiscal and economic impact studies since the company was formed in 1997.

Our fiscal impact analyses identify project benefits in terms of tax revenue projections and demand for community services from various providers. We have expanded our capabilities and recently, our economic impact analyses concentrate on an expanded quantification of project benefits including job generation during the construction and operation of development, projected salaries, consumer spending, sales tax generation from spending and other economic "ripple effect" benefits. It is critically important to understand the full benefits of economic development projects during difficult economic times.

NP&V has a track record of completed, successful and built projects involving fiscal impact analysis, demographic assessment, market studies and customized analyses of community service related impacts in nearly all Towns in Nassau and Suffolk Counties. NP&V's economic planning expertise can be integrated into economic development strategies, project feasibility, balancing of mixed-use project scenarios, community development and assistance programs and needs assessments. Please contact us for more information on how we can assist with the economic planning aspects of your development, re-development, revitalization or community needs assessment project.

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Market Analysis

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NP&V is a professional environmental and planning firm with qualifications and expertise to prepare various types of residential and commercial market analyses and feasibility studies, and has a track record of such completed projects throughout Long Island.

In the preparation of a market analysis, NP&V strives to identify and quantify the need for a specific type of development – be it a shopping center, office space, a new residential subdivision or an assisted living community, among others – that can be accommodated at a given location. NP&V is able to analyze the relationship between the supply and demand and reveal whether or not a given development could be supported in a specified location. This is accomplished through the definition of a target market area, a critical evaluation of demographics, socioeconomic characteristics and consumer trends, and an analysis of existing and comparable developments.

Findings and recommendations of our market analyses are tailored to each community, and provide the facts necessary to determine the viability of a given project, attract specific types of businesses, and market projects to possible investors. As such, our market analyses have proven to be a valuable tool in the decision-making process – for both the public sector and private developers.

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Niche Market and Branding Plan & Build-Out/Tax Base Analysis
Town of Brookhaven

Environmental Planning Consulting

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Economic Planning
Grant Preparation & Administration
Environmental Site Assessment
Environmental Science & Analysis
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Nelson, Pope & Voorhis (NP&V) is working with the Town of Brookhaven on a niche market and branding plan for Greater Bellport community. The focus of this plan is to form a set of recommendations that outline the necessary steps that members in the Greater Bellport community can take in order to successfully create a sense of place, community pride and positive perceptions through a more niche-oriented position in the local market. NP&V recommended various initiatives to make the Greater Bellport community unique and marketable, creating a place that people want to be, where people are comfortable, and a place that people remember and come back to time and again. The niche market and branding plan strives to promote the community's niche market to new residents, visitors and economic development opportunities alike, offering the Greater Bellport community the opportunity to develop a theme that they want to be known for.

NP&V is also working with the Town of Brookhaven on a build-out/tax base analysis, to analyze how the local school district could be impacted by growth. NP&V is working on the creation of a GIS model to compare tax assessments for various land use scenarios to ensure an adequate tax base to support increased growth in school population without disproportionate increases in residential tax rates. This model will be used to test assumptions for future development and analyze various alternatives in an automated fashion, allowing for easily comparison of scenarios and results. Ultimately, the model will provide a reality check for future planning with respect to provision of quality community services, and may provide support for creating additional commercial tax base within the district. The project is underway, and is nearing completion.

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Economic Development Chapter of the Comprehensive Plan Update

Town of Southold

Environmental Planning Consulting

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Storm Water Management Plans
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Permitting & Processing
Sustainability & LEED
Project Planning & Support

In an effort to achieve the Town's vision, five goals and numerous objectives were formed to provide direction for future decision-making pertaining to the Town's economy. Much of the Town's economic vitality is based on the Town's unique rural, historic and maritime-based character as well as its natural resources. It is critical that these qualities be recognized, enhanced and protected. NP&V is currently working on the preparation of the economic chapter of the Comprehensive Plan Update for the Town of Southold to allow for the formation of appropriate recommendations and implementation strategies focused on long-term economic sustainability throughout the Town.

One of the specific tasks involved with the economic chapter of the Town's Comprehensive Plan is the zoning/build-out analysis. The Town of Southold is facing development pressure and is concerned about the impact that the current zoning may have on the Town's resources. The Town of Southold prepared a build-out analysis of several zoning districts, and NP&V funneled these findings into a model to assess the regional impact of full build-out and modified development scenarios. Ensuring quality of life, protection of environmental resources, housing needs and maintenance of the tax base were key elements of the model. This project involved the creation of a spreadsheet model to synthesize multiple evaluation factors to analyze the impact of full build out of the Town of Southold under its current zoning. This project is an update to a similar project completed for the Town in 2003.

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RESUMES

Nelson, Pope & Voorhis

Charles J. Voorhis, AICP, CEP

PERSONAL PROFESSIONAL QUALIFICATIONS

Licensing and Certification:

- Certified Environmental Professional (CEP)
- American Institute of Certified Planners (AICP)
- Certified Environmental Inspector, Environmental Assessment Association
- US Coast Guard Master Steam and Auxiliary Sail Vessels

Experience:

- Managing Partner of Firm, Nelson, Pope & Voorhis, LLC; Melville, New York (1/97-Present)
- Principal of Firm, Charles Voorhis & Associates, Inc.; Miller Place, New York (8/88-1/97)
- Director, Division of Environmental Protection, Department of Planning, Environment and Development; Town of Brookhaven, New York (3/86-8/88)
- Environmental Analyst, Division of Environmental Protection, Department of Planning, Environment and Development; Town of Brookhaven, New York (8/82-3/86)
- Private and Public Consultant, Planning and Environmental Issues (8/82-3/87)
- Public Health Sanitarian, Suffolk County Department of Health Services; Hauppauge, New York (1/80-8/82)
- Environmentalist I, Suffolk County Department of Environmental Control, Central Islip, New York (2/78- 8/79)

Education:

- SUNY at Stony Brook; Master of Science in Environmental Engineering, concentration in Water Resource Management, 1984
- Princeton Associates; Groundwater Pollution and Hydrology Short Course, Princeton, New Jersey, 1983
- New York State Health Department, Environmental Health Training Course, Hauppauge, New York, 1982
- Southampton College of Long Island University; Bachelor of Science in Environmental Geology, 1977

Significant Professional Achievements:

- Lake Agawam Comprehensive Management Plan, 2008
- Southold TDR Planning Report and GEIS, 2008
- Suffolk County North Shore Embayments Watershed Management Plan, 2007
- Mt. Sinai Harbor Management Plan, 2006
- The Residences at North Hills, DEIS and FEIS, 2005-06
- Shelter Island Water Supply Study, 2005
- Town of Southold Comprehensive Implementation Strategy, 2003
- Lower Port Jefferson Harbor Action Plan, 2002
- Setauket Fire District Needs Analysis, 2001
- Southampton Agricultural Opportunities Subdivision, DEIS, FEIS and Findings, 2001
- Old Orchard Woods, DEIS and FEIS, 2000
- Town of Smithtown Armory Park, DEIS, 2000
- Town of Southold Water Supply Management & Water Protection Strategy, 2000
- CVS @ Greenlawn, DEIS and FEIS, 1998
- Knightsbridge Gardens, DEIS and FEIS, 1997
- Camelot Village @ Huntington, DEIS, 1997
- Airport International Plaza, DEIS and FEIS, 1996
- Price Club @ New Rochelle, DEIS and FEIS, 1995
- Commack Campus Park @ Commack DEIS and FEIS, 1994
- Water Mill Shops @ Water Mill DEIS, 1993
- PJ Venture Wholesale Club @ Commack DEIS and FEIS, 1993
- Dowling College NAT Center DEIS and FEIS, 1992
- Final EIS Angel Shores @ Southold, 1991
- Town of Brookhaven Boat Mooring Plan, 1991
- Draft EIS Round Hill @ Old Westbury, 1990
- GEIS Commercial Rezonings on the Towns Own Motion, 1988
- Draft EIS St. Elsewhere @ Nesconset, 1989
- EQBA, Acquisition Study for Brookhaven Town, 1987
- Award for Environmentally Sensitive Land Design, Pine Barrens Review Comm., 1988
- Town of Brookhaven Land Use Plan, 1987
- Discussion of Hydrogeologic Zone Boundaries in the Vicinity of S. Yaphank, LI, NY, 1986
- Comprehensive Review of Industrial Zoned Land in the Sensitive Hydrogeologic Zone, Brookhaven, 1983

Professional & Other Organizations (past and present):

- American Planning Association, Washington, D.C.
- National Association of Environmental Professionals, Alexandria, VA
- Environmental Assessment Association, Scottsdale, Arizona
- American Water Resources Association, Syracuse, New York
- New York Water Pollution Control Association, Riverdale, New York
- Water Pollution Control Federation, Washington, D.C.
- Long Island Seaport & EcoCenter, Inc., Director, Port Jefferson, NY
- Boy Scouts of America, Trained Scoutmaster, Nathanial Woodhull District, NY
- Historical Society of Port Jefferson, Trustee, Port Jefferson, NY
- Environmental Conservation Board, Village of Port Jefferson, NY
- Port Jefferson Village, Waterfront Advisory Committee, Port Jefferson, NY
- Town of Brookhaven Mount Sinai Harbor Advisory Committee, Medford, NY
- Brookhaven Conservation Advisory Council, Medford, NY

Steven J. McGinn, CEI

PERSONAL PROFESSIONAL QUALIFICATIONS

Licensing and Certification:

- Licensed Asbestos Inspector
- OSHA 40 Hour HAZWOPER
- Certified Environmental Inspector, Environmental Assessment Association (CEI)
- Lead Based Paint Risk Assessor
- Radon Measurement Specialist

Experience:

- Partner/Division Manager, Nelson, Pope & Voorhis, LLC (July 2005 to Present)
- Senior Environmental Analyst, Nelson, Pope & Voorhis, LLC (January 1997 to July 2005)
- Environmental Analyst, Nelson & Pope, LLP (July 1989 to January 1997)
- Project Manager, Middleton Kontokosta & Associates (May 1988 to July 1989)
- Planning Aide, Town of Huntington Planning Department (January 1987 to May 1988)

Education:

- 8-Hour HAZWOPER Refresher Course
- 40-Hour Course Hazardous Materials Training
- Performing Phase I Environmental Inspections, Environmental Assessment Association, Sept. 1997
- Environmental Regulations Course, Executive Enterprises, June 1996
- Environmental Impact Statements, Cook College/Rutgers University, December 1994
- State University of New York at Cortland - Bachelor of Science in Geography, January 1986

Significant Professional Achievements:

- Village of Hempstead Urban Renewal Project - Phase I ESA
- Coram Plaza, Coram - Phase I, II & III ESA and Asbestos Survey
- 744 Clinton Street, Brooklyn - Phase I & II ESA
- Middle Island Country Club, Middle Island - Phase I & II ESA
- Tyrolean Auto Sport, Northport - Phase II & III ESA
- Long Island Children's Museum, Westbury - Phase I & II ESA
- 940 Bryant Avenue, Bronx - Phase I ESA
- 1345 Seneca Avenue, Bronx - Phase I ESA
- Red Roof Farms, Rye Brook - Phase I & II ESA
- Thomas Dodge Subaru, Port Jefferson - Phase I & II ESA
- 221 Skip Lane, Bay Shore - Phase I & II ESA
- 950 West Main Street, Riverhead - Phase I ESA
- Long Island Galleria/Price Club Plaza, Westbury - DEIS & FEIS
- Currans Road Development, Middle Island - DEIS & FEIS
- Timber Ridge at the Plains, Greenlawn - DEIS & FEIS
- Greene's Creek Marina, Sayville - DEIS
- Town of Brookhaven Marine Reconstruction Projects, Patchogue, Blue Point, Port Jefferson, Mount Sinai, - Tidal Wetland Permits
- Village of Lake Success, Lake Success - Land Use and Zoning Analyses

Professional Responsibilities:

- Division Manager for Phase I and Phase II Environmental Site Assessments, Site Remediation Coordination and Supervision, Lead-Based Paint sampling and Asbestos Surveys for lending institutions
- Author of numerous Phase I & II ESA reports, remediation & brownfield projects work plans, and closure reports in both draft and final formats for major large scale, high-profile pro jects.
- Other responsibilities include the preparation of various environmental, planning and zoning studies and the preparation of various state and federal applications such as: land use and zoning studies, noise and air quality assessments, feasibility studies, economic analyses, freshwater and tidal wetland permits, etc.
- Interaction with various Town, County, State and Federal officials, attorneys, developers, engineers, Town Boards, Planning Boards, and Zoning Boards of Appeals.

Professional & Other Organizations (past and present):

- American Planning Association, Washington, D.C.
- National Association of Environmental Professionals, Alexandria, VA
- Environmental Assessment Association, Scottsdale, Arizona
- National Groundwater Association, Assoc. of Groundwater Scientists and Engineers

Carrie O'Farrell, AICP

PERSONAL PROFESSIONAL QUALIFICATIONS

Experience:

- Partner/Division Manager of the Environmental Resource & Wetland Assessment Division, Nelson, Pope & Voorhis, LLC Melville, New York (3/2004 - present).

- Environmental Planner; Nelson, Pope & Voorhis, LLC, Melville, NY (10/2002 to 2/2004). Preparation of environmental assessments, environmental impact statements and various other land use and feasibility studies. Development of land use plans for town zoning and planning purposes, and coordinate reviews with various town and state officials. Preparation of freshwater & tidal wetlands permits & permit plans, NYSDEC Stormwater Pollution Prevention Plans and Stormwater General Permit filings.

- Consultant and Environmental Policy Analyst, Booz Allen Hamilton, Inc., Washington, D.C. (1999 to 2002). Provide program management, planning, on-site support, and data analysis for various federal agency environmental programs including U.S. De partment of Energy, Federal Aviation Administration (FAA), and U.S. Department of Defense.
  Prepared policy recommendations, program information briefings, Congressional testimony, and various program support active ties. Reviewed and prepared sections of environmental impact analyses, policy language, responses to public comments, press releases, and fact sheets; and coordinated interagency meetings and comment resolution between various federal offices.

Education:

- Bachelor of Science: University of Rochester, Environmental Science, May 1999

Significant Professional Achievements:

- Environmental Impact Statements (EIS): Lighthouse@Long Island, Kensington Estates, Woodbury; Roslyn Landing@Roslyn; Tiana Commons PDD, Town of Southampton; Glen Harbor Partners Town of N. Hempstead; The Residences @ North Hills, Village of North Hills; Lands End, Village of Sands Point; Korean Church of Long Island, Village of Lake Success; Sandy Hills, Town of Brookhaven;
- Draft Generic EIS and Mixed Use Planned Development District legislation: Gabreski Airport PDD; North Sea Mixed Use Development District, Southampton, NY.
- Planned Development District Master Plan & Planned Development District (PDD) Legislation: Gabreski Airport Master Plan, Town of Southampton; North Sea PDD, Town of Southampton; Poxabogue Golf Course PDD, Town of Southampton
- Expanded Part I & Part III Environmental Assessments: Parrish Art Museum, Town of Southampton; Cenacle Manor, Ronkonkoma; The Seasons at East Meadow; Laurel Hollow Subdivision; Greenport Marina, Greenport, NY; Engel Burman @ Plainview; Shaw Estates at Manorville
- DEC SPDES Phase II Permits & Municipal Compliance: Village of Poquott, Village of Port Jefferson, & Village of Bellport Stormwater Management Plans; Completion of DEC annual re ports; completion of 75+ Stormwater Pollution Prevention Plans for Stormwater Discharges from Construction Activity (GP-0-08-001) for construction sites throughout Nassau & Suffolk Counties.
- Municipal Planning Studies: Mount Sinai Harbor Management Plan, Town of Brookhaven; NYSDOS Beaverdam Creek Watershed Management Plan; NYSDOS Barriers to Fish Passage in six South Shore Estuary Reserve Tributaries; Town of North Hempstead, North Sheets Creek Beach Shoreline & Park Improvements; Town of Shelter Island Water Supply Study; Village of Manorhaven Nature Preserve.
- Wetlands Permits & Feasibility Studies: Fire Island Pines Property Owner's Association, Brookhaven; Bedford Ponds, Bedford, NY; Kismet Walks, Town of Islip; Mooney Pond, Coram, Town of Brookhaven; Port Washington Yacht Club, Port Washington;
- Site plan/subdivision review: Town of Southampton, Town of Southold, & Village of Poquott.
- US Department of Energy Yucca Mountain Project Draft, Supplemental, and Final EIS. Conducted headquarters poli cy review, prepared draft language, and coordinated interagency comment/review of documents for nationwide NEPA project.
- U.S. Department of Energy Yucca Mountain Site Re commendation. Assisted in the development and review of U.S. Secretary of Energy's Yucca Mountain Site Recommendation Decision and Congressional approval.
- NYC CEQR Environmental Assessments: Briarwood Plaza Bell Boulevard Rezoning; Hatzolah of Boro Park
- NEPA Environmental Assessment: Heckscher Museum, Huntington, NY.

Kathryn J. Eiseman, AICP

PERSONAL PROFESSIONAL QUALIFICATIONS

Licensing and Certification:

- American Institute of Certified Planners (AICP)

Experience:

- Partner/Division Manager of the Environmental & Community Planning Division, Nelson, Pope & Voorhis, LLC Melville, NY) and Charles Voorhis & Associates, Inc. (Miller Place, NY) (7/93 to Present). Project management, preparation of planning studies, downtown revitalization plans, visual preference surveys and public workshop planning and facilitation, environmental impact statements, Geographic Information Systems analysis and mapping, air impact studies, air dispersion modeling (CAL3QHC), noise impact analysis and mitigation, conduct planning studies for land use compatibility/precedent, school and fiscal analysis, testimony at Planning Board meetings.
- Arlington Central School District; Poughkeepsie, NY. (9/91 - 6/93). Mathematics teacher, grade 7.
- Hyde Park Central School District; Hyde Park, NY. (9/89 - 6/91). Mathematics teacher, grades 7 and 8. Yearbook and Mathcounts Club advisor.

Education:

- State University of NY at Stony Brook, Masters Degree in Environmental and Waste Management, 12/96.
- State University of New York at New Paltz; New York (9/89- 6/93). Graduate studies in mathematics, education, computer science, environmental studies and liberal arts.
- Syracuse University; Syracuse, New York. Bachelors Degree. Dual Majors: Mathematics and Education, 5/88.
- Université de Grenoble; Grenoble, France. French language certificate program for foreign students, 5/84.

Significant Professional Achievements:

- Montauk Highway Corridor Study & Land Use Plan for Mastic and Shirley Phase II , 2009
- East Hampton Commercial Districts Study, 2009
- Oyster Bay LWRP, in progress
- Town of Brookhaven Athletic Fields Needs Assessment, in progress
- Planning Consultant to the Village of Southampton, ongoing
- Eastern Waterfront Community Vision & Revitalization Plan , 6/09
- Lake Ronkonkoma Clean Lakes Study Update, 7/08
- Suffolk County North Shore Embayments Watershed Management Plan, (Final), 11/07
- Syosset Downtown Redevelopment & Revitalization Plan, 9/05
- East Hills Architectural Review Board Planning Study, 1/05
- East Hills Residential Bulk Regulations Review & Study, 1/05
- Stormwater Outfall and Conveyance Inventory and Mitigation Plan for Town of Islip, 2003
- Mt. Sinai Harbor Shellfish Closure Area Investigation, Town of Brookhaven, 2/03
- Hicksville Fire District Mapping and Spatial Analysis, 2003.
- Visual Preference Survey, Port Jefferson Village, 6/02
- Setauket Fire District Needs Analysis, Setauket, New York, 2001
- Review of Past Water Quality Studies, Port Jefferson Village, 2000
- Stormwater Study, Inventory & Analysis of Stormwater Outfalls for the Town of Brookhaven South Shore Bays, 1996, West Meadow Creek, 2000, and Town of Islip, 2001

Professional Organizations, Certifications & Training:

- APA Metro Long Island Section Treasurer
- Boys & Girls Club of Bellport Advisory Council Member
- American Institute of Certified Planners since July 2000
- American Planning Association Member since 1997
- IAP2 Certificate Course in Public Participation, January 2004
- CommunityViz Scenario Constructor, SiteBuilder 3D™, Policy Simulator training, November 2002
- Introduction to ArcView GIS, ESRI 16 hour course, 4/00
- Fundamentals of Dispersion Modeling and Computer Modeling Laboratory, June, 1998
- Rutgers University, Methodology of Delineating Wetlands, July 1987

NICOLE L. DELLAVECCHIA

PERSONAL PROFESSIONAL QUALIFICATIONS

Experience:

Economic Analyst/Planner, Nelson, Pope & Voorhis, LLC (2009-Present)

- Completed fiscal impact analyses and economic impact analyses for planned development districts, as well as residential, commercial, recreational and mixed-use developments
- Prepared market analyses, feasibility studies, and needs assessments on small and large-scale shopping centers, mixed use developments, as well as residential developments, including independent senior living, assisted living facilities, continuing care retirement communities (CCRC) and other senior housing developments
- Completed property tax and sales tax analyses
- Prepared niche market/branding plans
- Conducted tax base, build-out, and zoning analyses
- Completed analyses to assess and quantify impacts to school districts and other local community service providers
- Involved with the preparation of SEQR review documents including Environmental Assessment Forms and Environmental Impact Statements
- Conducted demographic and socioeconomic analyses
- Prepared proposals and other marketing efforts

Urban Planner/Economic Analyst, Saratoga Associates, Saratoga Springs, NY (2006-2008)

- Completed comprehensive/master plans in urban, suburban and rural communities
- Conducted comprehensive community needs assessments, and demographic and socioeconomic analyses
- Heavily involved in economic development strategies, mall redevelopment, and tourism plans

Prepared market analyses and feasibility studies, as well as fiscal and economic impact analyses on variety of uses

- Involved with the preparation of corridor management plans, environmental impact statements, brownfield and industrial park redevelopment plans, local waterfront revitalization programs, parking demand analyses
- Facilitated public participation, community visioning processes and public forums
- Created maps, images, graphics and other visuals for various plans and presentations
- Prepared and reviewed grants for federal, state and local funding sources

Significant Professional Achievements:

- Waterfront Market Analysis: *Town of Oyster Bay Eastern Waterfront Area (2011)*
- Commercial Market Analysis: *The Meadows at Yaphank PDD (2011), Mt. Sinai Village Centre (2011), Artist Lake Plaza (2010), Eastport Hamlet Centre (2009)*
- Residential Market Analysis: *The Uplands at St. Johnland CCRC (2011), Assisted Living Community in Speonk (2010)*
- School District Analysis: *Jefferson Meadows (2011), North Manor Estates (2011)*
- Comprehensive Master Plan: Village of Poquott (2011), *Town of Southold - Economic Development Chapter and Demographics Chapter (2011)*
- Niche Market and Branding Plan: *North Bellport Community (2011)*
- Fiscal Impact Analysis: *The Meadows at Yaphank PDD (2011), Mt. Sinai Village Centre (2011), New Frontier (2011), Eastport Hamlet Centre (2010), The Hamptons Club at Eastport (2009)*
- Economic Impact Analysis: *The Meadows at Yaphank PDD (2011), Mt. Sinai Village Centre (2011), New Frontier (2011), Assisted Living Community at East Northport (2009), The Hamptons Club at Eastport (2009)*
- Planning Analysis in Support of Use Variance: *Edwards Avenue Property, Calverton (2011)*
- Received formal training in the IMPLAN Economic Modeling System through the Minnesota Implan Group, 2009

Education:

- **Master of Urban Planning**
  Specialization in International and Economic Development
  State University of New York, University at Buffalo, 2006
- **Bachelor of Arts - Economics**
  State University of New York, College at Geneseo, 2004
- **Bachelor of Arts - International Relations**
  Specialization in Economic Development
  State University of New York, College at Geneseo, 2004

Professional Organizations and Interests:

- American Planning Association, Member
- United States Green Building Council, Member
- State University of New York, College at Geneseo, Long Island Regional Alumni Committee, Member
- Ronald McDonald House of Long Island, Volunteer
- Special Olympics of New York, New York City Region and Long Island Region, Volunteer
- Alpha Phi Omega, Alumni

APPENDIX C

SUFFOLK COUNTY WATER AUTHORITY DISTRIBUTION AREA 12 WATER QUALITY DATA (2016)

EDUCATIONAL INFORMATION

PHARMACEUTICALS AND PERSONAL CARE PRODUCTS (PPCPs) MONITORING (Continued)

WATER QUALITY BY DISTRIBUTION AREA

					Distribution Area 12					Distribution Area 14					Distribution Area 15				
					Range of Readings					Range of Readings					Range of Readings				
Detected Compound	Likely Source	MCL	MCLG	Unit of Measure	Violation Yes/No	Low Value	High Value	Avg. Value	No. of Tests	Violation Yes/No	Low Value	High Value	Avg. Value	No. of Tests	Violation Yes/No	Low Value	High Value	Avg. Value	No. of Tests
Synthetic Organic Compounds including Pesticides and Pharmaceuticals																			
Carbamazepine	Anticonvulsant, mood stabilizing drug	50	n/a	ug/L	NO	ND	0.11	ND	283	NO	ND	ND	ND	14	NO	ND	0.15	ND	185
Dilantin	Antiepileptic drug	50	n/a	ug/L	NO	ND	0.15	ND	283	NO	ND	ND	ND	14	NO	ND	ND	ND	185
Gemfibrozil	Lipid lowering drug	50	n/a	ug/L	NO	ND	0.13	ND	283	NO	ND	ND	ND	14	NO	ND	0.05	ND	185
5-(4-Hydroxyphenyl)-5-Phenylhydantoin	Used for determining drug levels in the body	50	n/a	ug/L	NO	ND	0.10	ND	283	NO	ND	ND	ND	14	NO	ND	ND	ND	185
Ibuprofen	Anti-inflammatory drug	50	n/a	ug/L	NO	ND	0.21	ND	283	NO	ND	ND	ND	14	NO	ND	0.07	ND	185
Imidacloprid	Used as a pesticide	50	n/a	ug/L	NO	ND	0.06	ND	283	NO	ND	ND	ND	14	NO	ND	ND	ND	185
Lamotrigine	Pharmaceutical anticonvulsant drug	50	n/a	ug/L	NO	ND	ND	ND	283	NO	ND	ND	ND	14	NO	ND	0.23	ND	185
Meprobamate	Antianxiety drug	50	n/a	ug/L	NO	ND	0.44	ND	283	NO	ND	ND	ND	14	NO	ND	0.12	ND	185
Phenobarbital	Anticonvulsant, mood stabilizing drug	50	n/a	ug/L	NO	ND	1.54	ND	273	NO	ND	ND	ND	14	NO	ND	ND	ND	182
Primidone	Pharmaceutical anticonvulsant drug	50	n/a	ug/L	NO	ND	0.24	ND	283	NO	ND	ND	ND	14	NO	ND	0.05	ND	185
Sulfamethoxazole	Antibiotic	50	n/a	ug/L	NO	ND	0.08	ND	283	NO	ND	ND	ND	14	NO	ND	0.05	ND	185

WATER QUALITY BY DISTRIBUTION AREA

					Distribution Area 20					Distribution Area 23					Distribution Area 26				
					Range of Readings					Range of Readings					Range of Readings				
Detected Compound	Likely Source	MCL	MCLG	Unit of Measure	Violation Yes/No	Low Value	High Value	Avg. Value	No. of Tests	Violation Yes/No	Low Value	High Value	Avg. Value	No. of Tests	Violation Yes/No	Low Value	High Value	Avg. Value	No. of Tests
Synthetic Organic Compounds including Pesticides and Pharmaceuticals																			
Carbamazepine	Anticonvulsant, mood stabilizing drug	50	n/a	ug/L	NO	ND	0.08	ND	87	NO	ND	0.19	ND	145	NO	ND	ND	ND	38
Dilantin	Antiepileptic drug	50	n/a	ug/L	NO	ND	ND	ND	87	NO	ND	ND	ND	145	NO	ND	ND	ND	38
Gemfibrozil	Lipid lowering drug	50	n/a	ug/L	NO	ND	0.13	ND	87	NO	ND	ND	ND	145	NO	ND	ND	ND	38
5-(4-Hydroxyphenyl)-5-Phenylhydantoin	Used for determining drug levels in the body	50	n/a	ug/L	NO	ND	ND	ND	87	NO	ND	ND	ND	145	NO	ND	ND	ND	38
Ibuprofen	Anti-inflammatory drug	50	n/a	ug/L	NO	ND	ND	ND	87	NO	ND	ND	ND	145	NO	ND	0.06	ND	38
Imidacloprid	Used as a pesticide	50	n/a	ug/L	NO	ND	ND	ND	87	NO	ND	0.28	ND	145	NO	ND	ND	ND	38
Lamotrigine	Pharmaceutical anticonvulsant drug	50	n/a	ug/L	NO	ND	ND	ND	87	NO	ND	ND	ND	145	NO	ND	ND	ND	38
Meprobamate	Antianxiety drug	50	n/a	ug/L	NO	ND	0.06	ND	87	NO	ND	ND	ND	145	NO	ND	ND	ND	38
Phenobarbital	Anticonvulsant, mood stabilizing drug	50	n/a	ug/L	NO	ND	ND	ND	87	NO	ND	ND	ND	129	NO	ND	ND	ND	38
Primidone	Pharmaceutical anticonvulsant drug	50	n/a	ug/L	NO	ND	ND	ND	87	NO	ND	ND	ND	145	NO	ND	ND	ND	38
Sulfamethoxazole	Antibiotic	50	n/a	ug/L	NO	ND	0.10	ND	87	NO	ND	0.07	ND	145	NO	ND	ND	ND	38

WATER QUALITY BY DISTRIBUTION AREA

					Distribution Area 30					Distribution Area 32					Distribution Area 35				
					Range of Readings					Range of Readings					Range of Readings				
Detected Compound	Likely Source	MCL	MCLG	Unit of Measure	Violation Yes/No	Low Value	High Value	Avg. Value	No. of Tests	Violation Yes/No	Low Value	High Value	Avg. Value	No. of Tests	Violation Yes/No	Low Value	High Value	Avg. Value	No. of Tests
Synthetic Organic Compounds including Pesticides and Pharmaceuticals																			
Carbamazepine	Anticonvulsant, mood stabilizing drug	50	n/a	ug/L	NO	ND	0.05	ND	120	NO	ND	ND	ND	6	NO	ND	ND	ND	8
Dilantin	Antiepileptic drug	50	n/a	ug/L	NO	ND	ND	ND	120	NO	ND	ND	ND	6	NO	ND	ND	ND	8
Gemfibrozil	Lipid lowering drug	50	n/a	ug/L	NO	ND	ND	ND	120	NO	ND	ND	ND	6	NO	ND	ND	ND	8
5-(4-Hydroxyphenyl)-5-Phenylhydantoin	Used for determining drug levels in the body	50	n/a	ug/L	NO	ND	ND	ND	120	NO	ND	ND	ND	6	NO	ND	ND	ND	8
Ibuprofen	Anti-inflammatory drug	50	n/a	ug/L	NO	ND	ND	ND	120	NO	ND	ND	ND	6	NO	ND	ND	ND	8
Imidacloprid	Used as a pesticide	50	n/a	ug/L	NO	ND	0.26	ND	120	NO	ND	ND	ND	6	NO	ND	ND	ND	8
Lamotrigine	Pharmaceutical anticonvulsant drug	50	n/a	ug/L	NO	ND	ND	ND	120	NO	ND	ND	ND	6	NO	ND	ND	ND	8
Meprobamate	Antianxiety drug	50	n/a	ug/L	NO	ND	0.10	ND	120	NO	ND	ND	ND	6	NO	ND	ND	ND	8
Phenobarbital	Anticonvulsant, mood stabilizing drug	50	n/a	ug/L	NO	ND	ND	ND	116	NO	ND	ND	ND	6	NO	ND	ND	ND	8
Primidone	Pharmaceutical anticonvulsant drug	50	n/a	ug/L	NO	ND	0.19	ND	120	NO	ND	ND	ND	6	NO	ND	ND	ND	8
Sulfamethoxazole	Antibiotic	50	n/a	ug/L	NO	ND	0.54	ND	120	NO	ND	ND	ND	6	NO	ND	ND	ND	8

WATER QUALITY BY DISTRIBUTION AREA

					Distribution Area 39					Distribution Area 44					Distribution Area 53				
					Range of Readings					Range of Readings					Range of Readings				
Detected Compound	Likely Source	MCL	MCLG	Unit of Measure	Violation Yes/No	Low Value	High Value	Avg. Value	No. of Tests	Violation Yes/No	Low Value	High Value	Avg. Value	No. of Tests	Violation Yes/No	Low Value	High Value	Avg. Value	No. of Tests
Synthetic Organic Compounds including Pesticides and Pharmaceuticals																			
Carbamazepine	Anticonvulsant, mood stabilizing drug	50	n/a	ug/L	NO	ND	ND	ND	10	NO	ND	ND	ND	6	NO	ND	ND	ND	18
Dilantin	Antiepileptic drug	50	n/a	ug/L	NO	ND	ND	ND	10	NO	ND	ND	ND	6	NO	ND	ND	ND	18
Gemfibrozil	Lipid lowering drug	50	n/a	ug/L	NO	ND	ND	ND	10	NO	ND	ND	ND	6	NO	ND	ND	ND	18
5-(4-Hydroxyphenyl)-5-Phenylhydantoin	Used for determining drug levels in the body	50	n/a	ug/L	NO	ND	ND	ND	10	NO	ND	ND	ND	6	NO	ND	ND	ND	18
Ibuprofen	Anti-inflammatory drug	50	n/a	ug/L	NO	ND	ND	ND	10	NO	ND	ND	ND	6	NO	ND	ND	ND	18
Imidacloprid	Used as a pesticide	50	n/a	ug/L	NO	ND	ND	ND	10	NO	ND	ND	ND	6	NO	ND	ND	ND	18
Lamotrigine	Pharmaceutical anticonvulsant drug	50	n/a	ug/L	NO	ND	ND	ND	10	NO	ND	ND	ND	6	NO	ND	ND	ND	18
Meprobamate	Antianxiety drug	50	n/a	ug/L	NO	ND	ND	ND	10	NO	ND	ND	ND	6	NO	ND	ND	ND	18
Phenobarbital	Anticonvulsant, mood stabilizing drug	50	n/a	ug/L	NO	ND	ND	ND	10	NO	ND	ND	ND	6	NO	ND	ND	ND	18
Primidone	Pharmaceutical anticonvulsant drug	50	n/a	ug/L	NO	ND	ND	ND	10	NO	ND	ND	ND	6	NO	ND	ND	ND	18
Sulfamethoxazole	Antibiotic	50	n/a	ug/L	NO	ND	ND	ND	10	NO	ND	ND	ND	6	NO	ND	ND	ND	18

APPENDIX D

TOWN AND COMMUNITY SERVICES-RELATED CORRESPONDENCE

Town of Brookhaven Long Island

Edward P. Romaine, Supervisor

To: Chip Wiebelt, Sr. Site Plan Reviewer, Planning Division, PELM

From: Peter E. Fountaine, Pr. Environmental Analyst, DEP, PELM PEF

Date: August 25, 2017

Re: Crest Town Center PDD and PRCHC at Bellport
Log # 2017-011-CZ
S/s Woodside Ave., E/o Station Rd., Bellport
SCTM # 0200 87200 0200 015000 (approx. 52.95 acres)

In response to your memo and after the receipt of comments from involved and interested agencies contacted during the SEQRA coordination of this Type I Action, the Division of Environmental Protection (DEP) has reviewed the conceptual site plan and application materials supplied with the above-mentioned change of zone application. The project sponsor has proposed a change of zone from L Industrial 1 to Planned Development District (PDD) and Planned Retirement Congregate Housing Community (PRCHC) for the development of 160 two-bedroom apartments, 135,775 square feet of commercial/retail spaces, 160,000 square feet of industrial spaces, and an 88-unit assisted living facility.

The subject property is located on approximately 52.95 acres of vacant and wooded land located on the south side of Woodside Avenue (CR 99) east of Station Road in Bellport. The site is more particularly described as Suffolk County Tax Map (SCTM) Numbers 0200-87200-0200-015000 and 016000, and 0200-89900-0300-007000 and included in the study area for the *Town of Brookhaven 1996 Comprehensive Land Use Plan* and the *Sunrise Highway Corridor Study: Islip Town and Brookhaven Town Suffolk County, New York August 2009*. The properties are recommended for industrial uses in both above-mentioned studies for tax base and economic development purposes.

Please consider the following recommendations, suggestions and comments for future revisions and submissions by the applicant.

- The applicant should explain and discuss why the proposed zone change should be considered in the place of the existing L-industrial-1 zoning. Please elaborate on why a zone change in conflict with the *Town of Brookhaven 1996 Comprehensive Land Use Plan* and the *Sunrise Highway Corridor Study* should be considered for the properties and why the proposed project, including a large residential component, in such close proximity to the Town of Brookhaven Landfill is warranted.

- Please provide an analysis of the site location as a "primary zone' including a 1,320-foot radius map illustrating the distance from the subject property to major arterial roadways and showing an existing downtown/hamlet center or existing commercial area or node containing a sufficient concentration of supporting services, public transportation opportunities and adequate pedestrian access to supporting services pursuant to Section 85-273 of Town Code. The applicant should confirm and elaborate on the requirement to redeem approximately 22.4 Pine Barren Credits due to the proposed density increase of 112 units over the 48 units that would typically be allowable as base density for an industrially zoned property.

- The proposed development is expected to require approximately 68,400 gallons per day of water from the Suffolk County Water Authority (SCWA). Correspondence with the SCWA has indicated that the proposed water demand is significant for the area and mitigation in the form of low flow plumbing fixtures and a low maintenance vegetative plan are encouraged. Additionally, the subject properties border three (3) sides of the SCWA's Station Road well-field, pump station, and standpipe property. The applicant should consult with the

SCWA to determine further mitigation measures, possibility and placement of groundwater monitoring wells, and perhaps project design changes to ensure the protection of the Nassau-Suffolk sole source aquifer which provides drinking water for the area residents. Mitigation measures proposed to avoid environmental consequences to groundwater in this water supply sensitive area should be explained in detail and how the proposed project will not result in a significant adverse environmental impact to groundwater should be discussed.

- The applicant should clarify that the proposed project intends to utilize Suffolk County Sewer District No. 7 in Medford for the treatment and recharge of wastewater despite correspondence from the Suffolk County Sewer Agency indicating that the subject parcel is not within the boundary of the sewer district and that a limited amount of capacity may be available. This conflicts with the supplied Environmental Assessment Form Part 1 and should be corrected and resubmitted. There is repeated reference to "Suffolk County Sewer District # 12 in Medford", which may be attributed to the Twelve Pines Sewage Treatment Plant utilized as Suffolk County Sewer District No. 7.

- Significant natural vegetation, consisting of approximately 52 acres of mature Pitch Pine-oak forest, exists on the property and this property is likely habitat for the Northern Long Eared Bat, other small mammal species, and other wildlife species of concern such as the Eastern box turtle and many various avian species. The applicant should document the habitat types, including the flora and fauna on the subject properties as well as provide an analysis of impacts to the various species of plants and animals on the site and measures that will be taken to mitigate significant adverse environmental impacts associated with the clearing of large amounts of naturally established forested areas.

- Correspondence with the New York State Department of Environmental Conservation (NYSDEC), New York Natural Heritage Program, has indicated that their records show three (3) plants identified as threatened and the endangered Sandplain gerardia (*Agalinus acuta*) that are and/or were located on or near the subject properties. The presence or absence of the endangered Sandplain gerardia (*Agalinus acuta*) will need to be determined prior to any ground disturbances.

- Areas consisting of mature and established natural vegetation should be preserved to the greatest extent possible for a buffer to screen the proposed development from the Town of Brookhaven Landfill, views from Woodside Avenue, Station Road, and the Sunrise Highway, to preserve the rural character of the area, and to shield the current residents of the adjacent residential areas from adverse impacts due to construction.

- The proposed project is located within the boundaries of the South Shore Estuary Reserve and within the watershed areas of the Mud, Abets, and Hedges Creek. These tributaries convey ground and surface water to the Great South Bay. Please explain why a proposed project of this size and scope will, or will not, adversely impact the ecological quality of the South Shore Estuary Reserve.

- Adverse impacts due to construction can be expected for a development proposal of this size and scope. It is anticipated that the construction may continue for more than one year and in multiple phases. Approximately 40 acres of forested areas will be disturbed during construction that will result in the generation of particulate matter (dust), debris, erosion, traffic, and noise that will exceed acceptable levels for the surrounding residents and travelers on the adjacent roadways. The applicant should assess the occurrence of these impacts, the duration, number of people affected, and any other adverse consequences due to construction impacts in the immediate area. Proposed mitigation measures, best management practices, and reasons why the impacts will, or will not, result in a significant adverse environmental impact should be discussed.

- The energy demands of the proposed development should be discussed. Estimates of annual electricity demand should be determined and the existing substation evaluated for adequacy. The integration of renewable energy generating technologies to reduce the electrical demand should be considered. If renewable sources of generating electricity are not feasible to be developed within the project, please explain why.

- It is anticipated that the proposed project will adversely impact traffic on the surrounding roadways. It is likely that the projected traffic increase may exceed the capacity of the existing surrounding road network and degrade existing transit access. The Town of Brookhaven Division of Traffic Safety has indicated that a Traffic Impact Study (TIS) is warranted. Please summarize the conclusions of the TIS for the purpose of expediting the SEQRA review.

- The applicant should explain and discuss the proposed project's compliance with Articles 6, 7, and 12 of the Suffolk County Sanitary Code (SCSC).

- The applicant should explain and discuss the proposed project's compliance with Article XXVI: Planned Development District of the Town Code.

- The applicant should explain and discuss the proposed project's compliance with the previous covenants and restrictions associated with the Brookhaven Industrial Park at North Bellport, New York Phase II.

- The landscaping plan should utilize only native Pine Barrens species, with the exception of street trees specifically listed in Town Code and proposed for planting within the interior of the development.

Thank you for the opportunity to comment on this change of zone application. If you have any questions, comments, or concerns please do not hesitate to contact me.

PEF

Attachments

Cc: File

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, New York Natural Heritage Program
625 Broadway, Fifth Floor, Albany, NY 12233-4757
P: (518) 402-8935 I F: (518) 402-8925
www.dec.ny.gov

May 30, 2017

Peter Fountaine
Town of Brookhaven
One Independence Hill
Farmingville, NY 11738

Re: Commercial development on the east side of Station Road, approximately 1,950 feet south of Sills Road (CR 101)
County: Suffolk Town/City: Brookhaven

Dear Peter Fountaine:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project. Along this stretch of Station Road are records of four plants.

Sandplain wild flax (*Linum intercursum*) and **flax-leaf whitetop aster** (*Sericocarpus linifolius*), both listed as Threatened by New York State, have been documented along the side of this stretch of Station Road in areas of sparse vegetation. These species were last documented in 1996 and 1990, respectively; more recent information is not available in our database.

Sandplain gerardia (*Agalinus acuta*, listed as Endangered) and **Northern blazing-star** (*Liatris scariosa* var. *novae-angliae*, listed as Threatened) have also been found at the edge of this stretch of Station Road, as recently as 2004 and 1990, respectively; but were not found in the latest field surveys in the mid-2000's. The habitat for these plants was assessed to be disturbed and degraded to a degree that the continued presence of the plants is very unlikely.

For this site, comprehensive field surveys have not been conducted since the mid-2000's. We cannot provide a definitive statement on the presence or absence of these state-listed plants. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other resources may be required to determine the presence or absence of these plants and to fully assess any impacts on them.

For information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the NYS DEC Region 1 Office, Division of Environmental Permits.

Sincerely,

Nick Conrad

Nicholas Conrad
Information Resources Coordinator
New York Natural Heritage Program

510

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Town of Brookhaven
Long Island

RECEIVED
JUL 2 6 2018
NELSON & POPE

Edward P. Romaine, Supervisor

July 23, 2018

Enrico Scarda, Principal
Crest Bellport, LLC
1201 NYS Route 112,
Port Jefferson Station, NY 11776

RE: Town Board Application for - **Crest Town Center PDD & PRCHC**, L1 to PDD & NH-H, 52.95 acres. Located on N/S Sunrise Hwy, E/O Bellport Station Rd., Bellport, NY. **Town Log # 2017-011-CZ.** SCTM #'s: 0200 87200 0200 015000 & 016000 and 0200 89900 0300 002002, 002003, 002004 & 007000

Dear Mr. Scardia:

This letter is to inform you that the Town of Brookhaven Planning Division has received and processed your resubmission received in this office on July 9, 2018, for the above-referenced Town Board application.

Suffolk County Planning Commission: Once your application is determined to be complete and contains a "full statement of facts", your application will be referred pursuant to New York State Town Law and the Suffolk County Charter to the Suffolk County Planning Commission for recommendation and comments.

Community Outreach: Please advise us of your community outreach efforts.

Town Code Change of Zone Application Requirements:

1) Metes and Bounds/ Radius Map:
   a) NH-H Parcel: Please correct the typo in the last two courses of the meets and bounds description for the NH-H parcel that indicate frontage along Bellport Station Rd. (should indicated instead N/F Leonard Tarzia).
   b) Certification: Please sign the radius map certification statement.

2) 4x 4 Diagram: Please correct the application name to match the name of the application listed on the application form (Crest Town Center PDD & NH-H Change of Zone).

3) Town Code Development Standards: Town Code § 85-81.A.(5) requires a conceptual sketch plan map (your site plan) that indicates the proposals conformance with Town Code development standards. It is therefore requested that a Town Code development standards compliance table be provided or updated for the following sections of Town code:

PDD Dimensional Standards:

§ 85-742.G. Minimum buffer to residential uses adjacent to the Planned Development District (in accordance with the buffer provisions provided for in the land development standards).
Retail use: 75' buffer required in eastern yard along Walker Ave. (§ 85-843.B.2).
Retail use: 75' buffer required in western front yard along Bellport Station Rd. opposite residential uses on west side of Bellport Station Rd. (§ 85-843.B.3).
Industrial use: 75' buffer required in eastern yard along Walker Ave. (§ 85-843.B.2).
MF use: 25' buffer required in eastern yard along Walker Ave. (§ 85-843.B.2).

§ 85-844. Arterial Buffer & Setback Requirements: - Sunrise Highway 112 – Town line; 100' setback & buffer

Concept, Rationale and Quantitative Analysis Supplement Comments:

1) MF Proposal: The concept plan as part of the PDD, proposes a 19.03-acre for MF usage and a 14.1-acre area for PRC usage. However, the concept plan and the applicant's Concept, Rationale and Quantitative Analysis Supplement, both indicate that the 19.03-acre MF area will be further split by having 160 units MF and 30 units PRC. Be advised that this bifurcation of the proposed MF area is not permitted. Please revise both the concept plan and the Concept, Rationale and Quantitative Analysis Supplement.

2) Primary Zone: The Concept, Rationale and Quantitative Analysis Supplement indicates that the site is within a Primary zone but offers no documentation for that conclusion. Please provide a radius map as required by Town Code §85-273.1 illustrating that the project is "within a radius of 1,320 feet of an existing downtown/hamlet center or existing commercial area or node, subject to review of a 1,320-foot radius map illustrating that a sufficient concentration of supporting services, public transportation opportunities and adequate pedestrian access to such services exists". Based on cursory review, the concentration of supporting services appears to be within the radius, but the adequate pedestrian access may not exist and may need to be provided to qualify.

3) Retail/J2 use: Please clarify the use of the proposed 33,600 sf retail building in the project's Sunrise Highway front yard. The proposed circular type parking layout around the retail building is well known not to support retail type use while other types of permitted uses in proposed PDD J2 would be supported by the proposed layout.

4) Affordability: Please correct the affordability calculations as follows:
   a) Please round up to the nearest whole number when calculating Bonus Density
   b) Please round up to the nearest whole number when calculating amount of required affordable and work force units.
   c) Be advised that of the required 10% workforce (120% AMI) and affordable (80% AMI), at least half of such units shall be designated as affordable (80% AMI) homeownership housing or affordable rental housing.

Please address the above information and submit to the Town of Brookhaven Clerk's office as soon as possible so that we can review a complete application.

Sincerely Yours,

Tullio Bertoli, APA, AICP, LEED AP
Planning Commissioner
Planning, Environment and Land Management

BY: _____
Chip Wiebelt
Senior Site Plan Reviewer

CW/rw
Enc.
CC: Donna Lent, Town Clerk
Leigh Rate, Esq., Assistant Town Attorney
Tom Dixon, P.E., Nelson and Pope

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING
www.nelsonpopevoorhis.com

January 3, 2018

Brookhaven Fire Department
2486 Montauk Highway
Brookhaven, NY 11719
Attn: Chief Giuseppe Loiacono

Re: Crest Town Center
Change of Zone & Site Plan
NPV # 16212

Dear Chief Loiacono,

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are currently conducting an Expanded Environmental Assessment of a project to be located on a vacant 52.95-acre property located north of Sunrise Highway (SR 27), south of Woodside Avenue (CR 99), east side of Bellport Station Road and west of South Village Drive in North Bellport (See attached Location Map). The applicant seeks a change of zone from L-1 (Industry) to Mixed Use Planned Development District (PDD) and Planned Retirement Congregate Housing Community (PRCHC) zones. The proposed 46.06-acre mixed use PDD would include: 1) a 190-unit multifamily residential development consisting of (20) 750 SF studio, (80) 900 SF one-bedroom, and (90) 1,150 SF two-bedroom apartments; 2) a planned retirement community consisting of 76 2,500 SF two-bedroom units with private garages; 3) a 33,600 SF retail building; 4) a 4,500 SF restaurant; 5) a 6,805 SF market with fuel sales; and 6) a two-story mini-storage warehouse facility with a total floor area of 119,600 SF. The proposed 6.88-acre PRCHC zone would contain the seventh use, a three-story assisted living facility containing a total of 150 beds (See attached Concept Plan).

I am writing to obtain information in regard to Brookhaven Fire Department facilities, services, and capabilities which may be pertinent to the project. Specifically, I am requesting the following:

- Confirmation that the subject site is within the Brookhaven Fire District;
- The location of the station(s) that would serve the site;
- A listing of the major pieces of firefighting equipment at each facility noted above;
- The number of firefighters assigned to each facility;
- Any specialized firefighting capabilities the Department has;
- Whether the firefighters are volunteers or full-time;
- Any ambulance and/or EMT facilities or equipment relative to servicing the site; and
- Your opinion of the District's ability to serve this project or any issues and concerns you have.

If you have any additional information you feel pertinent to the project, or comments on the proposal, please do not hesitate to provide these in your response letter. Your responses will be included in the Expanded EAF, which will be submitted for review by the Town Board. Finally, if you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or mbrusseau@nelsonpope.com

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Michael Brusseau, CEP, AICP, LEED® AP
Senior Environmental Planner/Project Manager

Enc. Location Map & Conceptual Site Plan

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING
www.nelsonpopevoorhis.com

June 12, 2018

Brookhaven Fire Department
2486 Montauk Highway
Brookhaven, NY 11719
Attn: Chief Giuseppe Loiacono

Re: Crest Town Center Change of Zone & Revised Site Plan NPV # 16212

Dear Chief Loiacono,

Nelson, Pope & Voorhis, LLC (NP&V) is currently preparing an Environmental Impact Statement for a project proposed on a vacant 52.95-acre property located north of Sunrise Highway (SR 27), south of Woodside Avenue (CR 99), east side of Bellport Station Road and west of South Village Drive in North Bellport (See attached Location Map). NP&V had previously corresponded with you on this project; however, the proposed plans have been revised so it is necessary that we reach out to inform you of these changes and request your input again. The applicant seeks a change of zone from L-1 (Industry) to a Mixed-Use Planned Development District (PDD) and Health Facility District (NH-H). The proposed mixed-use PDD will include: 1) a 160-unit multifamily residential development; 2) a planned retirement community consisting of a total of 106 units; 3) a 33,600 SF retail building; 4) a 10,775 SF retail building; 5) a 4,500 SF restaurant; and 6) a two-story mini-storage warehouse facility with a total floor area of 119,600 SF. The proposed NH-H zone will contain the seventh use, an assisted living facility containing a total of 130 beds.

I am writing to obtain information in regard to Brookhaven Fire Department facilities, services, and capabilities which may be pertinent to the project. Specifically, I am requesting the following:

- Confirmation that the subject site is within the Brookhaven Fire District;
- The location of the station(s) that would serve the site;
- A listing of the major pieces of firefighting equipment at each facility noted above;
- The number of firefighters assigned to each facility;
- Any specialized firefighting capabilities the Department has;
- Whether the firefighters are volunteers or full-time;
- Any ambulance and/or EMT facilities or equipment relative to servicing the site; and
- Your opinion of the District's ability to serve this project or any issues and concerns you have.

If you have any additional information you feel pertinent to the project, or comments on the proposal, please do not hesitate to provide these in your response letter. Your responses will be included in the Environmental Impact Statement, which will be submitted for review by the Town Board. Finally, if you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or mbrusseau@nelsonpope.com

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Michael Brusseau, CEP, AICP, LEED® AP
Senior Environmental Planner/Project Manager

Enc. Location Map

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING
572 WALT WHITMAN ROAD, MELVILLE, NY 11747 - 2188
(631) 427-5665 FAX (631) 427-5620
npv@nelsonpope.com

December 27, 2017

Suffolk County Police Department, 5th Precinct
125 Waverly Avenue
Patchogue, NY 11772
Attn: William G. Silva, Inspector, Commanding Officer

Re: Crest Town Center
Change of Zone & Site Plan
NPV # 16212

Dear Inspector Silva,

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are currently conducting an Expanded Environmental Assessment of a project to be located on a vacant 52.95-acre property located north of Sunrise Highway (SR 27), south of Woodside Avenue (CR 99), east side of Bellport Station Road and west of South Village Drive in North Bellport (see attached Location Map). The applicant seeks a change of zone from L-1 (Industry) to Mixed Use Planned Development District (PDD) and Planned Retirement Congregate Housing Community (PRCHC) zones. The proposed 46.06-acre mixed use PDD would include: 1) a 190-unit multifamily residential development consisting of (20) 750 SF studio, (80) 900 SF one-bedroom, and (90) 1,150 SF two-bedroom apartments; 2) a planned retirement community consisting of 76 2,500 SF two-bedroom units with private garages; 3) a 33,600 SF retail building; 4) a 4,500 SF restaurant; 5) a 6,805 SF market with fuel sales; and 6) a two-story mini-storage warehouse facility with a total floor area of 119,600 SF. The proposed 6.88-acre PRCHC zone would contain the seventh use, a three-story assisted living facility containing a total of 150 beds (see attached Conceptual Plan).

I am writing to obtain information regarding Suffolk County Police Department, 5th Precinct facilities and services which may be pertinent to the project. Specifically, I am requesting confirmation that the 5th Precinct serves this site and an indication as to whether you believe your department can accommodate the additional demands that this development may place on it, and any specific issues or concerns you may have.

If you have any additional information you feel pertinent to the project, or comments on this proposal, please do not hesitate to provide these in your response letter. Your responses will be included in the Expanded EAF, which will be submitted for review by the Town Board. Finally, if you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or mbrusseau@nelsonpope.com.

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Michael Brusseau, CEP, AICP, LEED® AP
Senior Environmental Planner/Project Manager

Enc. Location Map and Conceptual Site Plan

NELSON, POPE & VOORHIS, LLC
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(631) 427-5665 FAX (631) 427-5620
npv@nelsonpope.com

June 12, 2018

Suffolk County Police Department, 5th Precinct
125 Waverly Avenue
Patchogue, NY 11772
Attn: William G. Silva, Inspector, Commanding Officer

Re: Crest Town Center Change of Zone & Revised Site Plan NPV # 16212

Dear Inspector Silva,

Nelson, Pope & Voorhis, LLC (NP&V) is currently preparing an Environmental Impact Statement for a project proposed on a vacant 52.95-acre property located north of Sunrise Highway (SR 27), south of Woodside Avenue (CR 99), east side of Bellport Station Road and west of South Village Drive in North Bellport (See attached Location Map). NP&V had previously corresponded with you on this project; however, the proposed plans have been revised so it is necessary that we inform you of these changes and reach out for your input again. The applicant seeks a change of zone from L-1 (Industry) to a Mixed-Use Planned Development District (PDD) and a Health Facility District (NH-H). The proposed mixed-use PDD will include: 1) a 160-unit multifamily residential development; 2) a planned retirement community consisting of a total of 106 units; 3) a 33,600 SF retail building; 4) a 10,775 SF retail building; 5) a 4,500 SF restaurant; and 6) a two-story mini-storage warehouse facility with a total floor area of 119,600 SF. The proposed NH-H zone will contain the seventh use, an assisted living facility containing a total of 130 beds.

I am writing to obtain information regarding Suffolk County Police Department, 5th Precinct facilities and services which may be pertinent to the project. Specifically, I am requesting confirmation that the 5th Precinct believes it can accommodate the additional demands that this development may place on it, and any specific issues or concerns you may have.

If you have any additional information you feel pertinent to the project, or comments on this proposal, please do not hesitate to provide these in your response letter. Your responses will be included in the Environmental Impact Statement, which will be submitted for review by the Town Board. Finally, if you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or mbrusseau@nelsonpope.com.

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Michael Brusseau, CEP, AICP, LEED® AP
Senior Environmental Planner/Project Manager

Enc. Location Map

COUNTY OF SUFFOLK
NEW YORK

POLICE DEPARTMENT

GERALDINE HART
POLICE COMMISSIONER

RECEIVED
JUL 02 2018
NELSON & POPE

June 25, 2018

Nelson, Pope & Voorhis, LLC
572 Walt Whitman Road
Melville, New York 11747

Attention: Mr. Michael Brusseau, Senior Environmental Project Manager

Dear Mr. Brusseau:

I am writing to confirm receipt of the proposal and location map for the Crest Town Center.

Please be advised that this area does fall within the confines of the Suffolk County Police Department's Fifth Precinct.

If I can be of any further assistance, please do not hesitate to call the undersigned.

Sincerely,

Insp. SOO

William G. Silva, Inspector
Commanding Officer, Fifth Precicnt

WGS/ms

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING
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(631) 427-5665 FAX (631) 427-5620
npv@nelsonpope.com

December 27, 2017

South Country Central School District
189 Dunton Avenue
East Patchogue, New York 11772
Attn: Dr. Joseph Giania, Superintendent of Schools

Re: Crest Town Center
Change of Zone & Site Plan
NPV # 16212

Dear Dr. Giania:

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are currently conducting an Expanded Environmental Assessment of a project to be located on a vacant 52.95-acre property located north of Sunrise Highway (SR 27), south of Woodside Avenue (CR 99), east side of Bellport Station Road and west of South Village Drive in North Bellport (see attached Location Map). The applicant seeks a change of zone from L-1 (Industry) to Mixed Use Planned Development District (PDD) and Planned Retirement Congregate Housing Community (PRCHC) zones. The proposed 46.06-acre mixed use PDD would include: 1) a 190-unit multifamily residential development consisting of (20) 750 SF studio, (80) 900 SF one-bedroom, and (90) 1,150 SF two-bedroom apartments; 2) a planned retirement community consisting of 76 2,500 SF two-bedroom units with private garages; 3) a 33,600 SF retail building; 4) a 4,500 SF restaurant; 5) a 6,805 SF market with fuel sales; and 6) a two-story mini-storage warehouse facility with a total floor area of 119,600 SF. The proposed 6.88-acre PRCHC zone would contain the seventh use, a three-story assisted living facility containing a total of 150 beds (see attached Conceptual Plan). A preliminary estimate for the multifamily residential component of the development (76 two-bedroom units) indicates that +/-29 school-aged (k-12) children would occupy the development and attend one of District's public schools.

I am writing to obtain information regarding South Country CSD facilities and conditions that may be pertinent to the project. Specifically, I am requesting the following:

- Confirmation that the project site is within the South Country CSD;
- The names, locations and grades served of the individual schools that comprise the District;
- Enrollment at each school for the current school year;
- The per-student expenditures for the current school year; and
- Information on any enrollment or budgetary concerns of the South Country CSD.

If you have any additional information you feel pertinent to the project, or comments on the proposal, please do not hesitate to provide these in your response letter. Your responses will be included in the Expanded EAF, which will be submitted for review by the Town Board. Finally, if you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or mbrusseau@nelsonpope.com

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Michael Brusseau, CEP, AICP, LEED® AP
Senior Environmental Planner/Project Manager

Enc. Location Map

NELSON, POPE & VOORHIS, LLC
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(631) 427-5665 FAX (631) 427-5620
npv@nelsonpope.com

June 25, 2018

South Country Central School District
189 Dunton Avenue
East Patchogue, New York 11772
Attn: Dr. Joseph Giania, Superintendent of Schools

Re: Crest Town Center Change of Zone & Revised Site Plan

Dear Dr. Giania:

Nelson, Pope & Voorhis, LLC (NP&V) is preparing an Environmental Impact Statement (EIS) for a project proposed on a vacant 52.95-acre site located north of Sunrise Highway, south of Woodside Avenue, east side of Bellport Station Road and west of South Village Drive in North Bellport (See attached Location Map). NP&V previously corresponded with you and district representative, John Sheahan, on this project and would like to inform you of changes to the plan to address School District concerns.

The applicant seeks Town approval for a change of zone and: 1) a 160-unit multifamily residential development consisting of 20 750-SF studio apartments, 80 900-SF one-bedroom apartments, and 60 1,150-SF two-bedroom apartments; 2) 106 1,950-SF two-bedroom retirement units with private garages; 3) a 130-bed assisted living facility; 4) 33,600 SF health club; 5) a 4,500 SF restaurant; 6) a 15,000 SF market; and 7) a two-story mini-storage warehouse facility having a total gross floor area of 119,600 SF. The currently proposed project reduces the total number of two-bedroom apartments from 90 to 60, increases the number of age-restricted retirement units from 76 to 106, reduces the number of assisted living beds from 150 to 130, and increases the size of one of the retail uses from 6,805 SF to 15,000 SF. Based on this revised plan, the estimated number of children that would attend public schools has been reduced from 27 to 20, and annual school district tax revenues from the development are expected to increase the tax revenues raised from the development versus costs to educate children from the development from a surplus of $637,494/year to a surplus of $760,129/year.

I am writing to obtain any further input you may have regarding South Country CSD facilities and conditions or concerns that may be pertinent to the revised project. If you have any additional information or comments on the revised plan, please do not hesitate to provide these in a response letter. Your responses will be included in the EIS, which will be submitted to the Town Board for review. Finally, if you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or mbrusseau@nelsonpope.com

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Michael Brusseau, CEP, AICP, LEED® AP
Senior Environmental Planner/Project Manager

Enc. Location Map
Revised June 21, 2018 Fiscal & Economic Impact Analysis

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING
572 WALT WHITMAN ROAD, MELVILLE, NY 11747 - 2188
(631) 427-5665 FAX (631) 427-5620
npv@nelsonpope.com

December 27, 2017

National Grid
175 East Old Country Road
Hicksville, NY 11801
Attn: Alicia Longo

Re: Crest Town Center
Change of Zone & Site Plan
NPV # 16212

Dear Ms. Longo:

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are currently conducting an Expanded Environmental Assessment of a project to be located on a vacant 52.95-acre property located north of Sunrise Highway (SR 27), south of Woodside Avenue (CR 99), east side of Bellport Station Road and west of South Village Drive in the North Bellport section of the Town of Brookhaven (see attached Location Map). The applicant seeks a change of zone from L-1 (Industry) to Mixed Use Planned Development District (PDD) and Planned Retirement Congregate Housing Community (PRCHC) zones. The proposed 46.06-acre mixed use PDD would include: 1) a 190-unit multifamily residential development consisting of (20) 750 SF studio, (80) 900 SF one-bedroom, and (90) 1,150 SF two-bedroom apartments; 2) a planned retirement community consisting of 76 2,500 SF two-bedroom units with private garages; 3) a 33,600 SF retail building; 4) a 4,500 SF restaurant; 5) a 6,805 SF market with fuel sales; and 6) a two-story mini-storage warehouse facility with a total floor area of 119,600 SF. The proposed 6.88-acre PRCHC zone would contain the seventh use, a three-story assisted living facility containing a total of 150 beds.

I am writing to obtain information in regard to the following:

- Whether there are existing gas facilities available at the site, or in its absence, whether natural gas can be supplied to the site;
- If natural gas can be supplied, the location(s) and sizes of the supply lines which would be used;
- While no estimate of consumption is available at present, please indicate any National Grid concerns as to whether an additional service connection would significantly impact the ability of National Grid to supply services to its other customers in the area; and
- If natural gas can be provided, please send a letter to my attention confirming that such service can be provided to serve the proposed development.

If you have any additional information you feel pertinent to the project, or comments on the proposal, please do not hesitate to provide these in your response letter. Your responses will be included in the Expanded EAF, which will be submitted for review by the Town Board. Finally, if you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or mbrusseau@nelsonpope.com

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Michael Brusseau, CEP, AICP, LEED® AP
Senior Environmental Planner/Project Manager

Enc. Location Map

NELSON, POPE & VOORHIS, LLC
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npv@nelsonpope.com

June 12, 2018

National Grid
175 East Old Country Road
Hicksville, NY 11801
Attn: Alicia Longo

Re: Crest Town Center Change of Zone & Revised Site Plan NPV # 16212

Dear Ms. Longo:

Nelson, Pope & Voorhis, LLC (NP&V) is currently preparing an Environmental Impact Statement for a project proposed on a vacant 52.95-acre property located north of Sunrise Highway (SR 27), south of Woodside Avenue (CR 99), east side of Bellport Station Road and west of South Village Drive in North Bellport (See attached Location Map). NP&V had previously corresponded with you on this project; however, the proposed plans have been revised so it is necessary that we reach out for your input again to inform you of these changes. The applicant seeks a change of zone from L-1 (Industry) to Mixed-Use Planned Development District (PDD) and the Town's Health Facility District (NH-H). The proposed mixed-use PDD will include: 1) a 160-unit multifamily residential development; 2) a planned retirement community consisting of a total of 106 units; 3) a 33,600 SF retail building; 4) a 10,775 SF retail building; 5) a 4,500 SF restaurant; and 6) a two-story mini-storage warehouse facility with a total floor area of 119,600 SF. The proposed NH-H will contain the seventh use, an assisted living facility containing a total of 130 beds.

I am writing to obtain information in regard to the following:

- Whether there are existing gas facilities available at the site, or in its absence, whether natural gas can be supplied to the site;
- If natural gas can be supplied, the location(s) and sizes of the supply lines which would be used;
- While no estimate of consumption is available at present, please indicate any National Grid concerns as to whether an additional service connection would significantly impact the ability of National Grid to supply services to its other customers in the area; and
- If natural gas can be provided, please send a letter to my attention confirming that such service can be provided to serve the proposed development.

If you have any additional information you feel pertinent to the project, or comments on the proposal, please do not hesitate to provide these in your response letter. Your responses will be included in the Environmental Impact Statement, which will be submitted for review by the Town Board. Finally, if you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or mbrusseau@nelsonpope.com

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Michael Brusseau, CEP, AICP, LEED® AP
Senior Environmental Planner/Project Manager

Enc. Location Map

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING
572 WALT WHITMAN ROAD, MELVILLE, NY 11747 - 2188
(631) 427-5665 FAX (631) 427-5620
npv@nelsonpope.com

December 27, 2017

PSEG Long Island
Customer Order Fulfillment Department
175 East Old Country Road
Hicksville, NY 11801
Attention: Carolyn Mackin, Manager

Re: Crest Town Center
Change of Zone & Site Plan
NPV # 16212

Dear Ms. Mackin:

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are currently conducting an Expanded Environmental Assessment of a project to be located on a vacant 52.95-acre property located north of Sunrise Highway (SR 27), south of Woodside Avenue (CR 99), east side of Bellport Station Road and west of South Village Drive in North Bellport section of the Town of Brookhaven (see attached Location Map). The applicant seeks a change of zone from L-1 (Industry) to Mixed Use Planned Development District (PDD) and Planned Retirement Congregate Housing Community (PRCHC) zones. The proposed 46.06-acre mixed use PDD would include: 1) a 190-unit multifamily residential development consisting of (20) 750 SF studio, (80) 900 SF one-bedroom, and (90) 1,150 SF two-bedroom apartments; 2) a planned retirement community consisting of 76 2,500 SF two-bedroom units with private garages; 3) a 33,600 SF retail building; 4) a 4,500 SF restaurant; 5) a 6,805 SF market with fuel sales; and 6) a two-story mini-storage warehouse facility with a total floor area of 119,600 SF. The proposed 6.88-acre PRCHC zone would contain the seventh use, a three-story assisted living facility containing a total of 150 beds.

I am writing to obtain information in regard to electric service. Specifically, I am requesting the following:

- Confirmation that electricity can be supplied to the site;
- If electricity can be supplied, the location(s) and sizes of the supply lines which would be used;
- While no estimate of consumption is available at present, please indicate any LIPA/PSEG LI concerns as to whether an additional service connection would significantly impact the ability of LIPA/PSEG LI to supply services to its other customers in the area; and,
- If electricity can be provided, please send a letter to my attention confirming that such service can be provided.

If you have any additional information you feel pertinent to the project, or comments on the proposal, please do not hesitate to provide these in your response letter. Your responses will be included in the Expanded EAF, which will be submitted for review by the Town Board and Planning Board. Finally, if you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or mbrusseau@nelsonpope.com

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Michael Brusseau, CEP, AICP, LEED® AP
Project Manager

Enc. Location Map

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June 12, 2018

PSEG Long Island
Customer Order Fulfillment Department
175 East Old Country Road
Hicksville, NY 11801
Attention: Carolyn Mackin, Manager

Re: Crest Town Center Change of Zone & Revised Site Plan
NPV # 16212

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I am writing to obtain information in regard to electric service. Specifically, I am requesting the following:

- Confirmation that electricity can be supplied to the site;
- If electricity can be supplied, the location(s) and sizes of the supply lines which would be used;
- While no estimate of consumption is available at present, please indicate any LIPA/PSEG LI concerns as to whether an additional service connection would significantly impact the ability of LIPA/PSEG LI to supply services to its other customers in the area; and,
- If electricity can be provided, please send a letter to my attention confirming that such service can be provided.

If you have any additional information you feel pertinent to the project, or comments on the proposal, please do not hesitate to provide these in your response letter. Your responses will be included in the Environmental Impact Statement, which will be submitted for review by the Town Board and Planning Board. Finally, if you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or mbrusseau@nelsonpope.com

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Michael Brusseau, CEP, AICP, LEED® AP
Project Manager

Enc. Location Map

NELSON, POPE & VOORHIS, LLC
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npv@nelsonpope.com

December 27, 2017

Suffolk County Water Authority
PO Box 38
Oakdale, NY 11769
Attn: Kim Kennedy

Re: Crest Town Center
Change of Zone & Site Plan
NPV # 16212

Dear Ms. Kennedy:

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are currently conducting an Expanded Environmental Assessment of a project to be located on a vacant 52.95-acre property located north of Sunrise Highway (SR 27), south of Woodside Avenue (CR 99), east side of Bellport Station Road and west of South Village Drive in North Bellport (see attached Location Map). The applicant seeks a change of zone from L-1 (Industry) to Mixed Use Planned Development District (PDD) and Planned Retirement Congregate Housing Community (PRCHC) zones. The proposed 46.06-acre mixed use PDD would include: 1) a 190-unit multifamily residential development consisting of (20) 750 SF studio, (80) 900 SF one-bedroom, and (90) 1,150 SF two-bedroom apartments; 2) a planned retirement community consisting of 76 2,500 SF two-bedroom units with private garages; 3) a 33,600 SF retail building; 4) a 4,500 SF restaurant; 5) a 6,805 SF market with fuel sales; and 6) a two-story mini-storage warehouse facility with a total floor area of 119,600 SF. The proposed 6.88-acre PRCHC zone would contain the seventh use, a three-story assisted living facility containing a total of 150 beds (see attached Conceptual Plan). The proposed project is estimated to require a conservative total potable water supply of 97,405 gpd for domestic/operational purposes, as well as an average irrigation demand of 25,638.11 gpd over the course of a year for a total average demand of 123,042.36 gpd.

I would like to request the following information (which may be contained in the District's Annual Water Report):

- The number of the SCWA Distribution Area in which the subject site is located;
- The wellfield and aquifer(s) from which the wells serving the site pump; and
- If applicable, information on the nature and extent of any water quality and/or water supply problems in the area.
- Any issues or concerns the SCWA may have or benefits it expects from the project.

If you have any additional information you feel pertinent to the project, or comments on the proposal, please do not hesitate to provide these in your response letter. Your responses will be included in the Expanded EAF, which will be submitted for review by the Town Board. Finally, if you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 Ext. 188 or mbrusseau@nelsonpope.com

Very truly yours,
NELSON, POPE & VOORHIS, LLC

Michael Brusseau, CEP, AICP, LEED® AP
Senior Environmental Planner/Project Manager

Enc. Location Map & Conceptual Site Plan

SUFFOLK COUNTY WATER AUTHORITY

Timothy J. Hopkins
General Counsel

Administrative Offices: 4060 Sunrise Highway, Oakdale, New York 11769-0901
(631) 563-0236
Fax (631) 563-0370

January 17, 2018

RECEIVED
JAN 22 2017 NB
NELSON & POPE

Michael Brusseau, CEP, AICP
Senior Environmental Planner/Project Manager
Nelson, Pope & Voorhis, LLC
572 Walt Whitman Road
Melville, NY 11747

RE: Request for Information - Crest Town Center PDD, PRCHC, Change of Zone & Site Plan

Dear Mr. Brusseau:

The SCWA is in receipt of your recent request for information pertaining to the captioned proposal and thank you for the opportunity to provide you with SCWA's concerns as they relate to the latest version of this project.

The project would be served by the Central Island Intermediate Zone- Pressure Zone 12. The property is adjacent to SCWA's Station Road well field which has three wells, all of which are supplied from the Upper Glacial Aquifer. Two wells and the standpipe supply Pressure Zone 1, while the third well supplies Pressure Zone 12. At this time there is no known water quality issues in the area.

The latest version of the proposal as outlined in your request for information indicates that a gas station is now proposed as part of the project which is in close proximity to SCWA's Station Road well field. The entire property is located within the 2 year capture zone for Station Road wells 1A and 2A. For these reasons, SCWA has concerns with this type of use as part of the project.

Additionally, the projected potable water demand and irrigation for this latest version of the project are <u>significantly</u> greater than what was proposed and commented on in May, 2017. (see attached comment letter) The increase in demand will likely necessitate infrastructure improvements as to ensure SCWA's ability to provide for the project, particularly for fire protection.

May I suggest that you contact Joseph Pokorny, SCWA's Deputy CEO of Operations at 631-563-0202 to set up an appointment to discuss this project. Having an open dialogue with our engineering staff prior to the preparation of an anticipated Environmental Impact Statement would be helpful to both the applicant and the Authority. It would provide much needed detail as the Authority closely examines its infrastructure needs while offering the applicant an opportunity to prepare a meaningful impact statement, avoiding any unforseen obstacles.

Very truly yours,

Kimberly Kennedy

Kimberly Kennedy
Assistant to General Counsel

cc: Joseph Pokorny, Deputy CEO of Operations, SCWA

NELSON, POPE & VOORHIS, LLC
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npv@nelsonpope.com

June 28, 2018

Suffolk County Water Authority
PO Box 38
Oakdale, NY 11769
Attn: Kim Kennedy

Re: Crest Town Center Change of Zone & Revised Site Plan
NPV # 16212

Dear Ms. Kennedy:

Nelson, Pope & Voorhis, LLC (NP&V) is currently preparing an Environmental Impact Statement (EIS) for a project proposed on a vacant 52.95-acre property located north of Sunrise Highway (SR 27), south of Woodside Avenue (CR 99), east side of Bellport Station Road and west of South Village Drive in North Bellport (See attached Location Map). NP&V previously met and corresponded with your office on this project and the proposed plans have been revised based on these previous meetings and correspondence. As such, it is necessary that we inform you of the latest changes and reach out once again for your input.

The applicant seeks a change of zone from L-1 (Industry) to Mixed-Use Planned Development District (PDD) and Health Facility District (NH-H). The proposed mixed-use PDD will now include: 1) a 160-unit multi-family residential development consisting of 20 studio apartments at 750 SF per unit, 80 one-bedroom apartments at 900 SF per unit, and 60 two-bedroom apartments at 1,150 SF per unit; 2) 30 1,950-SF two-bedroom PRC units with private garages on the MF site; 3) a separate planned retirement community (PRC) consisting of 76 1,950-SF two-bedroom units plus private garages; 3) 33,600 SF health club; 4) a 4,500 SF restaurant; 5) a 15,000 SF market; 6) a two-story mini-storage warehouse facility having a total gross floor area of 119,600 SF; and 7) a 130-bed assisted living facility. The currently proposed project reduces the total number of two-bedroom apartments from 90 to 60; increases the number of age-restricted retirement units from 76 to 106, reduces the number of assisted living beds from 150 to 130; and increases the size of one of the retail uses from 6,805 SF to 15,000 SF.

The currently proposed project is estimated to require a conservative total potable water supply of 95,614 gpd for domestic/operational purposes, as well as an average daily irrigation demand of 24,265 gpd for a total average daily water demand of 119,879 gpd. These projected flows reflect a total reduction of 3,165 gpd from the previous plan which would have required 97,405 gpd for domestic/operational purposes and 25,639 gpd of irrigation water for a total demand of 123,044 gpd. To further address SCWA concerns, the applicant intends to provide separate irrigation zones to reduce peak flows and minimize the use of irrigation water and fertilizer-dependent vegetation in the landscape plan.

Peak water flow was also projected by the project engineers. (See attached June 22, 2018 letter from Nelson & Pope.) Based on Nelson & Pope's projections total peak water demand for the currently proposed project is 660 gpm for domestic demand, 1,500 gpm for fire protection, and 155.15 gpm for irrigation demand.

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npv@nelsonpope.com

Any additional information or input you may have would, as always, be greatly appreciated. Your responses will be included in the Environmental Impact Statement, which will be submitted for review by the Brookhaven Town Board. Finally, if you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 Ext. 188 or mbrusseau@nelsonpope.com

Very truly yours,
NELSON, POPE & VOORHIS, LLC

Michael Brusseau, CEP, AICP, LEED® AP
Senior Environmental Planner/Project Manager

Enc. Location Map
June 22, 2018 letter from Nelson & Pope

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING
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December 27, 2017

Town of Brookhaven
Parks Department
One Independence Hill
Farmingville, NY 11738
Attn: Edward P. Morris, Commissioner

Re: Crest Town Center
Change of Zone & Site Plan
NPV # 16212

Dear Mr. Morris:

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are currently conducting an Expanded Environmental Assessment of a project to be located on a vacant 52.95-acre property located north of Sunrise Highway (SR 27), south of Woodside Avenue (CR 99), east side of Bellport Station Road and west of South Village Drive in North Bellport (see attached Location Map). The applicant seeks a change of zone from L-1 (Industry) to Mixed Use Planned Development District (PDD) and Planned Retirement Congregate Housing Community (PRCHC) zones. The proposed 46.06-acre mixed use PDD would include: 1) a 190-unit multifamily residential development consisting of (20) 750 SF studio, (80) 900 SF one-bedroom, and (90) 1,150 SF two-bedroom apartments; 2) a planned retirement community consisting of 76 2,500 SF two-bedroom units with private garages; 3) a 33,600 SF retail building; 4) a 4,500 SF restaurant; 5) a 6,805 SF market with fuel; and 6) a two-story mini-storage warehouse facility with a total floor area of 119,600 SF. The proposed 6.88-acre PRCHC zone would contain the seventh use, a three-story assisted living facility containing a total of 150 beds.

Recreation areas and open space will be provided for the PRC and multifamily components of the project. The PRC project would provide a 31,340 SF outdoor recreation area and the multifamily residential development would include an outdoor swimming pool and clubhouse or recreation building.

Please let us know if you have any issues or concerns relating to the project, anticipated demands or capacity of Town recreational facilities to serve the development and provide any information or input you feel is relevant to the project. Your responses will be included in the Expanded EAF, which will be submitted for review by the Town Board. Finally, if you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or mbrusseau@nelsonpope.com

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Michael Brusseau, CEP, AICP, LEED® AP
Senior Environmental Planner/Project Manager

Enc. Location Map

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(631) 427-5665 FAX (631) 427-5620
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June 12, 2018

Town of Brookhaven
Parks Department
One Independence Hill
Farmingville, NY 11738
Attn: Edward P. Morris, Commissioner

Re: Crest Town Center Change of Zone & Revised Site Plan
NPV # 16212

Dear Mr. Morris:

Nelson, Pope & Voorhis, LLC (NP&V) is currently preparing an Environmental Impact Statement for a project proposed on a vacant 52.95-acre property located north of Sunrise Highway (SR 27), south of Woodside Avenue (CR 99), east side of Bellport Station Road and west of South Village Drive in North Bellport (See attached Location Map). NP&V had previously corresponded with you on this project; however, the proposed plans have been revised so it is necessary that we inform you of these changes and reach out for your input again. The applicant seeks a change of zone from L-1 (Industry) to Mixed-Use Planned Development District (PDD) and the Town's Health Facility District (NH-H). The proposed mixed-use PDD will include: 1) a 160-unit multifamily residential development; 2) a planned retirement community consisting of a total of 106 units; 3) a 33,600 SF retail building; 4) a 10,775 SF retail building; 5) a 4,500 SF restaurant; and 6) a two-story mini-storage warehouse facility with a total floor area of 119,600 SF. The proposed NH-H will contain the seventh use, an assisted living facility containing a total of 130 beds. Recreation areas and open space will be provided for the PRC and multifamily components of the project.

Please let us know if you have any issues or concerns relating to the project, anticipated demands or capacity of Town recreational facilities to serve the development and provide any information or input you feel is relevant to the project. Your responses will be included in the Environmental Impact Statement, which will be submitted for review by the Town Board. Finally, if you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or mbrusseau@nelsonpope.com

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Michael Brusseau, CEP, AICP, LEED® AP
Senior Environmental Planner/Project Manager

Enc. Location Map

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npv@nelsonpope.com

December 27, 2017

Suffolk County Department of Public Works
Sanitation Division
335 Yaphank Avenue
Yaphank, NY 11980
Attn: Gilbert Anderson, P.E., Commissioner

Re: Crest Town Center
Change of Zone & Site Plan
NPV # 16212

Dear Commissioner Anderson:

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are currently conducting an Expanded Environmental Assessment of a project to be located on a vacant 52.95-acre property located north of Sunrise Highway (SR 27), south of Woodside Avenue (CR 99), east side of Bellport Station Road and west of South Village Drive in North Bellport (see attached Location Map). The applicant seeks a change of zone from L-1 (Industry) to Mixed Use Planned Development District (PDD) and Planned Retirement Congregate Housing Community (PRCHC) zones. The proposed 46.06-acre mixed use PDD would include: 1) a 190-unit multifamily residential development consisting of (20) 750 SF studio, (80) 900 SF one-bedroom, and (90) 1,150 SF two-bedroom apartments; 2) a planned retirement community consisting of 76 2,500 SF two-bedroom units with private garages; 3) a 33,600 SF retail building; 4) a 4,500 SF restaurant; 5) a 6,805 SF market with fuel sales; and 6) a two-story mini-storage warehouse facility with a total floor area of 119,600 SF. The proposed 6.88-acre PRCHC zone would contain the seventh use, a three-story assisted living facility containing a total of 150 beds.

The project appears to be located within Suffolk County Sewer District No. 7 and proposes connection to the public sewer. I am writing specifically to obtain information in regard to this proposed sewer connection and the capacity of the district's sewage treatment facility/plant to serve the site. A preliminary but conservative estimate of sewage flow (based on SCDHS' hydraulic load factors) indicates an upper flow of 97,405 gpd. I am specifically requesting the following:

- Whether sewer service is available to the property;
- Size of available main(s);
- The current average and peak volume of wastewater treated at the STP, the STP's design capacity, and the available capacity of the STP; and
- Information regarding permitting and/or engineering review for the project by the sewer district, if any.

If you have any additional information you feel pertinent to the project, or comments on the proposal, please do not hesitate to provide these in your response letter. Your responses will be included in the Expanded EAF, which will be submitted for review by the Town Board. Finally, if you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or mbrusseau@nelsonpope.com

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Michael Brusseau, CEP, AICP, LEED® AP
Senior Environmental Planner/Project Manager

COUNTY OF SUFFOLK

STEVEN BELLONE
SUFFOLK COUNTY EXECUTIVE

DEPARTMENT OF PUBLIC WORKS

DARNELL TYSON, P.E.
DEPUTY COMMISSIONER

GILBERT ANDERSON, P.E.
COMMISSIONER

THOMAS G. VAUGHN
DEPUTY COMMISSIONER

April 17, 2017

cwiebelt@brookhaven.org
Chip Wiebelt
Town of Brookhaven – Division of Planning
One Independence Hill
Farmingdale, NY 11738

Subject: **Crest Town Center PDD & PRCHC Log # 2017-011-CZ**
SCTM # 0200-87200-0200-015000

Mr. Wiebelt:

The Town of Brookhaven's notification of Lead Agency status for the above-referenced project (dated March 27, 2017) was received by the Suffolk County Sewer Agency on March 31, 2017.

In areas concerning Wastewater Treatment and disposal, the Suffolk County Sewer Agency reserves the right to comment on this proposed project and would like to be informed of all actions taken pursuant to SEQR and to be copied on submittals of the DEIS, FEIS, etc. reports.

Comments: In review of the Land Use Application and Full Environmental Assessment Form please note the following:

- *The Suffolk County sewer district in the vicinity is No. 7 – Medford.*
- *The subject parcel is not within the boundary of said sewer district.*
- *At this time a limited amount of capacity may be available.*
- *Connection to the County sewer district requires the following approvals:*
    - *Sewer Agency (submittal of an application)*
    - *Suffolk County Legislative*
    - *New York DEC*

If you have any comments or questions, please contact me at 852-4191.
Sincerely,

Craig A. Platt
Public Works Special Projects Supervisor
Suffolk County Department of Public Works
Sanitation/Engineering Division
335 Yaphank Avenue
Yaphank, NY 11980
(631) 852-4191
(631) 852-4659 (fax)
Craig.platt@suffolkcountyny.gov

CAP/dv

Cc: Janice McGovern, P.E.
Boris Rukovets, P.E.
Donna Lent, Brookhaven Town Clerk

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING
www.nelsonpopevoorhis.com

January 3, 2018

South Country Ambulance Company
PO Box 596
Brookhaven, NY 11719-0596
Attn: Chief Gregory Miglino, Jr.

Re: Crest Town Center
Change of Zone & Site Plan
NPV # 16212

Dear Chief Miglino,

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are currently conducting an Expanded Environmental Assessment of a project to be located on a vacant 52.95-acre property located north of Sunrise Highway (SR 27), south of Woodside Avenue (CR 99), east side of Bellport Station Road and west of South Village Drive in North Bellport (See attached Location Map). The applicant seeks a change of zone from L-1 (Industry) to Mixed Use Planned Development District (PDD) and Planned Retirement Congregate Housing Community (PRCHC) zones. The proposed 46.06-acre mixed use PDD would include: 1) a 190-unit multifamily residential development consisting of (20) 750 SF studio, (80) 900 SF one-bedroom, and (90) 1,150 SF two-bedroom apartments; 2) a planned retirement community consisting of 76 2,500 SF two-bedroom units with private garages; 3) a 33,600 SF retail building; 4) a 4,500 SF restaurant; 5) a 6,805 SF market with fuel sales; and 6) a two-story mini-storage warehouse facility with a total floor area of 119,600 SF. The proposed 6.88-acre PRCHC zone would contain the seventh use, a three-story assisted living facility containing a total of 150 beds.

I am writing to obtain information in regard to South Country Ambulance's facilities, services, and capabilities which may be pertinent to the project. Specifically, I am requesting the following:

- Confirmation that the subject site is within South Country Ambulance's jurisdiction;
- The location of the ambulance station(s) that serve the site;
- A listing of the major pieces of equipment (ambulances, rescue vehicles, etc.) at each facility noted above;
- The number of personnel assigned to each facility and whether they are volunteers or full-time;
- Any specialized capabilities the Ambulance Company has; and
- Your opinion of the District's ability to serve this project or any issues or concerns you have.

If you have any additional information you feel pertinent to the project, or comments on the proposal, please do not hesitate to provide these in your response letter. Your responses will be included in the Expanded EAF, which will be submitted for review by the Town Board. Finally, if you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or mbrusseau@nelsonpope.com

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Michael Brusseau, CEP, AICP, LEED® AP
Senior Environmental Planner/Project Manager

Enc. Location Map & Conceptual Site Plan

NELSON, POPE & VOORHIS, LLC
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June 12, 2018

South Country Ambulance Company
PO Box 596
Brookhaven, NY 11719-0596
Attn: Chief Gregory Miglino, Jr.

Re: Crest Town Center Change of Zone & Revised Site Plan
NPV # 16212

Dear Chief Miglino,

Nelson, Pope & Voorhis, LLC (NP&V) is currently preparing an Environmental Impact Statement for a project proposed on a vacant 52.95-acre property located north of Sunrise Highway (SR 27), south of Woodside Avenue (CR 99), east side of Bellport Station Road and west of South Village Drive in North Bellport (See attached Location Map). NP&V had previously corresponded with you on this project; however, the proposed plans have been revised so it is necessary that we reach out to inform you of these changes and request your input again. The applicant seeks a change of zone from L-1 (Industry) to a Mixed-Use Planned Development District (PDD) and Health Facility District (NH-H). The proposed mixed-use PDD will include: 1) a 160-unit multifamily residential development; 2) a planned retirement community consisting of a total of 106 units; 3) a 33,600 SF retail building; 4) a 10,775 SF retail building; 5) a 4,500 SF restaurant; and 6) a two-story mini-storage warehouse facility with a total floor area of 119,600 SF. The proposed NH-H zone will contain the seventh use, an assisted living facility containing a total of 130 beds.

I am writing to obtain information in regard to South Country Ambulance's facilities, services, and capabilities which may be pertinent to the project. Specifically, I am requesting the following:

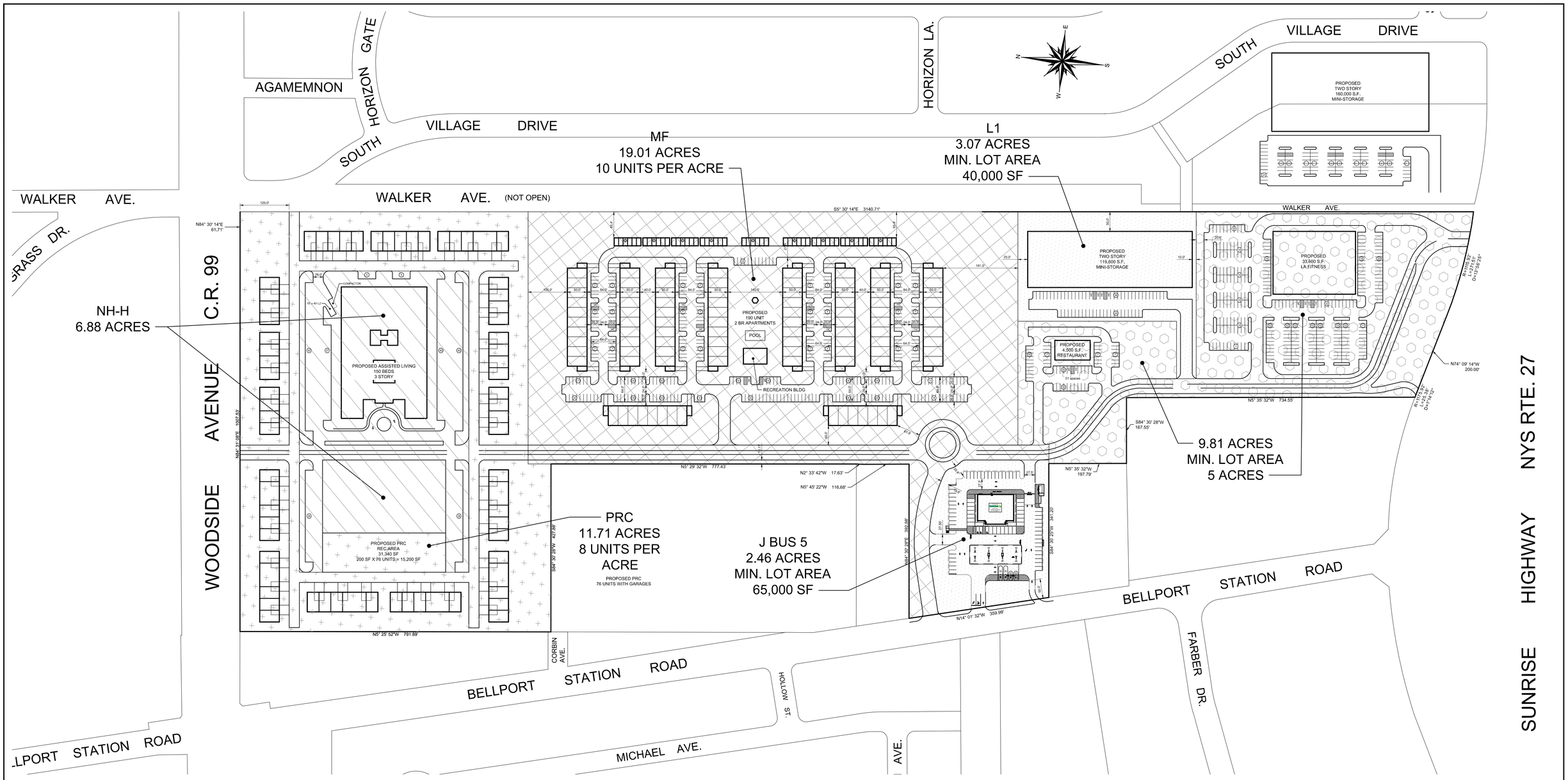
* Confirmation that the subject site is within South Country Ambulance's jurisdiction;
* The location of the ambulance station(s) that serve the site;
* A listing of the major pieces of equipment (ambulances, rescue vehicles, etc.) at each facility noted above;
* The number of personnel assigned to each facility and whether they are volunteers or full-time;
* Any specialized capabilities the Ambulance Company has; and
* Your opinion of the District's ability to serve this project or any issues or concerns you have.

If you have any additional information you feel is pertinent to the project, or comments on the proposal, please do not hesitate to provide these in your response letter. Your responses will be included in the Environmental Impact Statement, which will be submitted for review by the Town Board. Finally, if you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or mbrusseau@nelsonpope.com

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Michael Brusseau, CEP, AICP, LEED® AP
Senior Environmental Planner/Project Manager

Enc. Location Map



NH-H
REQUIRED FOR ASSISTED LIVING FACILITY:
1 STALL PER 2 BEDS x 150 BEDS = 75 STALLS

PROVIDED: 159 STALLS INCLUDING 4 ACCESSIBLE STALLS
1-15' x 40' LOADING ZONE

PARKING CALCULATIONS:

PDD

MF-1
REQUIRED:
190 UNITS x 2 STALLS PER UNIT = 380 STALLS

PROVIDED:
16 ATTACHED GARAGE SPACES
54 ACCESSORY GARAGE SPACES
327 OFFSTREET SPACES INCLUDING 10 ACCESSIBLE SPACES
TOTAL PROVIDED: 397 STALLS

L-1
REQUIRED FOR MINI-STORAGE:
119,600 S.F. x 1/2,000 S.F. = 60 STALLS

PROVIDED: 60 STALLS INCLUDING 4 ACCESSIBLE STALLS

J BUS 2
- REQUIRED FOR HEALTH CLUB:
33,600 GFA x 1/150 GFA = 224 STALLS

- REQUIRED FOR RESTAURANT:
4,500 S.F. x 1/100 GFA = 45 STALLS
TOTAL REQUIRED: 269 STALLS

PROVIDED: 315 STALLS INCLUDING 6 ACCESSIBLE STALLS

J BUS 5
- REQUIRED FOR MOTOR VEHICLE FUELING STATION: 2 STALLS
- REQUIRED FOR CONVENIENCE STORE:
6,805 S.F. x 1/100 S.F. = 68 STALLS
TOTAL REQUIRED: 70 STALLS

PROVIDED: 73 STALLS INCLUDING 3 ACCESSIBLE STALLS

PRC
REQUIRED: 1.5 PER DWELLING UNIT x 76 UNITS = 114 STALLS

PROVIDED: 76 DRIVEWAYS
52 OFFSTREET
128 STALLS

BUILDING AREA BREAKDOWN:

PDD

L-1 PARCEL: 119,600 S.F. MINI-STORAGE

MF-1 PARCEL: 190 - 2 BR APARTMENTS @ 1,250 S.F. = 237,500 S.F.

J BUS 2 PARCEL: 33,600 S.F. LA FITNESS
4,500 S.F. RESTAURANT
38,100 S.F. TOTAL

J BUS 5 PARCEL: 6,805 S.F. QUICKCHEK

PRC PARCEL: 76 - 2BR UNITS @ 2,500 S.F = 190,000 S.F. (EXCL. GARAGES)

TOTAL FOR PDD: 592,005 S.F.

FAR REQUIRED: 60%
FAR PROVIDED: 592,005 S.F. ~ 13.59 ACRES / 46.07 ACRES = 29.5%

NH-H
ASSISTED LIVING FACILITY: 62,900 S.F. FOOTPRINT

LOT OCCUPANCY REQUIRED: 20%
PROVIDED: 20.99%

ZONING COMPLIANCE TABLE PDD

	REQUIRED	PROVIDED
MIN. LOT AREA	3 ACRES	46.07 ACRES
MIN. LOT WIDTH	100 FEET	472 FEET
MIN. FRONT YARD SETBACK	25 FEET	25 FEET
MIN. SIDE AND REAR YARD SETBACKS	50 FEET	50 FEET
MAX. BUILDING HEIGHT	50 FEET / 3 1/2 STORIES	50 FEET / 3 1/2 STORIES
MAX. FLOOR AREA RATIO	60%	24.54%

NOTE:
LAND DEVELOPMENT STANDARDS AND SETBACK & BUFFER REQUIREMENTS WILL BE DEVELOPED WITH THE DIRECTION OF THE PLANNING BOARD

MF (PRIMARY ZONE)
DENSITY REQUIRED: 10 UNITS x 19.01 ACRES = 190 UNITS
PROVIDED: 190 UNITS

L-1
1. PLANNING BOARD SPECIAL PERMIT REQUIRED FOR MINI-STORAGE WAREHOUSE (85-564)
2. SPECIAL PERMIT CRITERIA FOR MINI-STORAGE FACILITY (85-569)

J BUS 2

J BUS 5
1. TOWN BOARD SPECIAL PERMIT FOR MOTOR VEHICLE FUELING STATION (85-460)
2. TOWN BOARD SPECIAL PERMIT FOR CONVENIENCE STORE AS ACCESSORY USE TO A MOTOR VEHICLE FUELING STATION (85-463)

PRC (PRIMARY ZONE)
DENSITY REQUIRED: 8 UNITS x 11.71 ACRES = 93 UNITS
PROVIDED: 76 UNITS WITH GARAGES

RECREATIONAL AREA REQUIRED: 200 SF PER UNIT x 76 UNITS = 15,200 SF
PROVIDED: 31,340 SF

ZONING COMPLIANCE TABLE NH-H

	REQUIRED	PROVIDED
MAX. BUILDING HEIGHT	35 FEET / 2 1/2 STORIES	7 FEET
MAX. BUILDING AREA (FOOTPRINT)	20%	24.2%
MIN. GROSS AREA	3 ACRES	7.95 ACRES
ROAD FRONTAGE	200 FEET	301 FEET
MIN. FRONT YARD SETBACK	100 FEET	? FEET
MIN. SIDE YARD SETBACK	50 FEET	? FEET
MIN. REAR YARD SETBACK	75 FEET	? FEET

SITE DATA:

AREA OF SITE: 52.95 ACRES
EXISTING ZONE: L-1
PROPOSED ZONE: PDD (L-1, MF-1, J BUS 2, J BUS 5, PRC) & NH-H
AREA IN L-1 PARCEL: 3.07 ACRES
AREA IN MF-1 PARCEL: 19.01 ACRES
AREA IN J BUS 2 PARCEL: 9.81 ACRES
AREA IN J BUS 5 PARCEL: 2.46 ACRES
AREA IN PRC PARCEL: 11.71 ACRES
AREA IN NH-H PARCEL: 6.88 ACRES

SCHOOL DISTRICT: SOUTH COUNTRY CSD
WATER DISTRICT: SCWA
FIRE DISTRICT: BELLPORT
POST OFFICE: NORTH BELLPORT
S.C.T.M.: 0200-872-02-15 & 16
0200-899-03-2.2, 2.3, 2.4 & 7

BOUNDARY INFORMATION TAKEN FROM SURVEY PREPARED BY HAYNES LAND SURVEYORS, AMENDED AUGUST 4, 2014

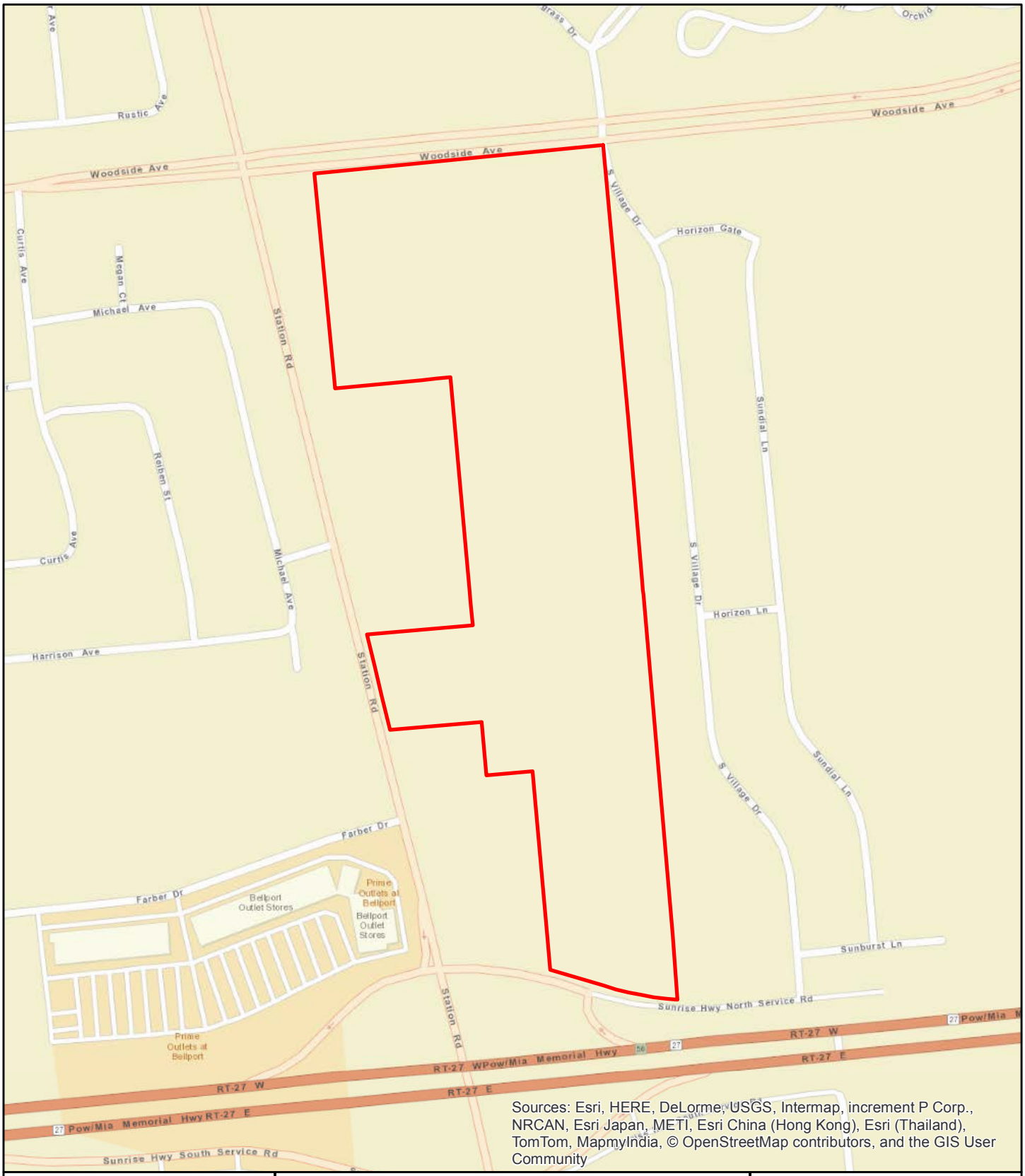
NO.	DATE:	REVISIONS:	BY:
-	-	-	-

P.E. SEAL AND SIGNATURE

CONCEPTUAL SITE PLAN
FOR
CREST TOWN CENTER
SITUATED AT
BELLPORT
TOWN OF BROOKHAVEN, SUFFOLK COUNTY, NEW YORK
S.C.T.M.: DISTRICT: 200, SECT. 872, BLK. 02, LOTS 15 & 16
DISTRICT: 200, SECT. 899, BLK. 03, LOTS 2.2, 2.3, 2.4, & 7

NELSON & POPE
ENGINEERS & SURVEYORS
WALT WHITMAN ROAD MELVILLE N
PHONE FAX
WWW.NELSONPOPE.COM

PROJECT NO.:
DRAWN BY: L.
CHECKED BY: C.
DATE:
SCALE:
FILE NO.:
CADD: REZONE
DRAWING NO.: C-101
SHEET NO.: OF



Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

FIGURE 1
LOCATION MAP

Source: ESRI Web Mapping Service

Scale: 1 inch = 500 feet

N

Crest Town Center Bellport

Expanded EAF

APPENDIX E

SONIR ANALYSIS

Appendix E-1
SONIR Model User's Guide

SONIR MODEL USER'S GUIDE

Simulation of Nitrogen in Recharge (SONIR)
Nelson, Pope & Voorhis, LLC Microcomputer Model

September 3, 2018

INTRODUCTION

SONIR is a microcomputer model developed by Charles J. Voorhis, CEP, AICP and copyrighted with the Library of Congress for exclusive use by Nelson, Pope & Voorhis, LLC (NP&V) in order to simulate the hydrologic water budget of a site and determine total nitrogen and nitrogen present in recharge in connection with land use projects. The model was developed on the Microsoft Excel Spreadsheet (trademark of Microsoft Products) for IBM (trademark of International Business Machines, Inc.) or compatible Personal Computers capable of running Excel. SONIR is updated periodically by NP&V to account for updated references and data in keeping with industry standards and environmental changes. NP&V is a professional environmental planning consulting firm with expertise in water resource management and impact assessment, nitrogen budget modeling, watershed management plans, and groundwater, soil and air sampling and environmental monitoring. Firm qualifications are provided in **Attachment A**.

Nitrogen has been identified as a source of contamination primarily from sanitary discharge and lawn fertilization. Nitrogen is of concern as a drinking water contaminant, and there is an established health limit of 10 milligrams per liter (mg/l) in drinking water. Nitrogen is also of concern in surface water, as it is a nutrient that when present in high concentrations can cause algal blooms (including harmful algal blooms, HABs), resulting in biological oxygen demand as algae is biologically decomposed as well as unsafe and potentially toxic conditions in the case of cyanobacteria. Depleted oxygen in surface waters causes conditions unfavorable to fish species and can result in extremely undesirable aesthetic impacts, primarily related to odors. Accordingly, it is necessary to understand the concentration of nitrogen in recharge as well as nitrogen load, as related to a proposed site development, examination of mitigation measures and comparison of alternatives.

Utilizing a mass-balance concept, and applying known hydrologic facts and basic assumptions, it is possible to predict the concentration of nitrogen in recharge to the shallow aquifer underlying a given site. This prediction can in turn be used to determine impacts and significance of impacts in consideration of hydrogeologic factors. Similar techniques have been used to simulate nitrogen in recharge as published by the New York State Water Resources Institute, Center for Environmental Research at Cornell University, Ithaca, New York (**Hughes and Pacenka, 1985**). SONIR is intended to provide a more versatile model based upon the BURBS Mass-Balance concept. SONIR allows for use of the model to predict nitrogen impact from many sources including sewage treatment plants, and further allows for determination of a wider variety site coverage and recharge components under the hydrologic water budget section. SONIR has more versatility in the input of information, and also provides a printout of each step performed by the model, in order for regulatory agencies and review entities to understand how values are derived.

This text describes in detail the definition of terms, supported by referenced information regarding input of data for the simulation. The concept of determining the concentration of nitrogen in recharge involves a predication of the weight (mass) of nitrogen introduced to the site, as compared to the quantity of recharge resulting from precipitation and wastewater water discharge. Losses due to evapotranspiration and runoff must be accounted for in the simulation. The values and relationship associated with these parameters determines the quantity of recharge which enters the site. The prediction is generally annualized due to the availability of average annual hydrologic data; however, data input can be determined on a seasonal basis if information is available.

The model includes four (4) data sheets identified as follows:

Data Input Field - Sheet 1
Site Recharge Computations - Sheet 2
Site Nitrogen Budget - Sheet 3
Nitrogen in Recharge Output Field - Sheet 4

All information required by the model is input in Sheet 1- Data Input Field. Sheets 2 and 3 utilize data from Sheet 1 to compute the Site Recharge and the Site Nitrogen Budget. Sheet 4 utilizes the total values from Sheets 2 and 3 to perform the final Nitrogen in Recharge computations. Sheet 4 also includes tabulations of all conversion factors utilized in the model.

It should be noted that the simulation is only as accurate as the data which is input into the model. An understanding of hydrologic principles is necessary to determine and justify much of the data inputs used for water budget parameters. Further principles of environmental science and engineering are applied in determining nitrogen sources, application and discharge rates, degradation and losses, and final recharge. Users must apply caution in arriving at assumptions in order to ensure justifiable results.

Since the preparation of the Draft EIS, information has become available from the Long Island Nitrogen Action Plan (LINAP), which is useful updating nitrogen budget model assumptions. LINAP included a metadata analysis of all available information to establish recommended nitrogen application rates, leaching rates, population data, pet waste assumptions and updated methods to determine atmospheric deposition. LINAP assumptions were received from the Suffolk County Department of Health Services and the New York State Department of Environmental Conservation as of January, 2017, and are used where appropriate for many updated nitrogen budget analyses in SONIR. A copy of the LINAP assumptions is included as **Attachment B** to this SONIR Model User's Guide.

SITE RECHARGE COMPUTATIONS

Overview

SONIR utilizes the basic hydrologic equation for determining the quantity of recharge anticipated by subtracting recharge losses from total precipitation. The quantity of recharge resulting from a given site is determined using the hydrologic budget equation **(Koszalka, 1984; p. 19):**

$$R = P - (E + Q)$$

where:
R = recharge
P = precipitation
E = evapotranspiration
Q = overland runoff

The quantity of recharge must be determined for each type of land use existing on a site, in order to determine the resultant site recharge. Surfaces commonly considered include: impervious surfaces; turfed areas; and natural areas; however, SONIR allows for a variety of land cover types to be considered in the model. In addition, site recharge occurs as a result of irrigation and wastewater discharge. In cases where water is imported to a site via a public water system, this quantity of recharge must be considered as additional water recharged on site. SONIR allows for all of these recharge components to be included in the simulation. Many sites have fresh surface water in the form of lakes and ponds. Precipitation falls upon these surfaces; however, such features generally act as a mechanism for water loss as a result of evaporation. SONIR includes a Water Area Loss component in determining the site Hydrologic Water Budget and in computing recharge nitrogen.

Data Input - Sheet 1

The following provides a discussion of data sources and assumptions associated with the hydrologic water budget, corresponding to the Data Input Field in Sheet 1 of SONIR:

1. *Area of Site* - The total area of the site (in acres) that is capable of recharging precipitation is entered in this data cell. For sites that include tidal wetlands, the area that is inundated by tidal waters should be excluded, as recharge from these areas should not be considered in the context of nitrogen simulation. For sites that include fresh surface water, the area can be included, provided evaporative water loss from surface water is considered by entering the acreage of surface water in Data Cell 15 noted below.

2. *Precipitation Rate* - Precipitation in the form of rainfall and snowmelt is determined using long-term recorded values from local weather stations. Cornell University maintains the Northeast Regional Climate Center, from which long-term precipitation data for Long Island weather stations is available. Monthly precipitation averages are published for the period 1951-1980 in Thornthwaite and Mather's Climatic Water Budget

Method **(Snowden and Pacenka, 1985).** More updated precipitation data from the NOAA National Climatic Data Center for the period 1981 to 2010 was obtained from http://www.currentresults.com/Weather/New-York/average-yearly-precipitation.php. The nearest precipitation monitoring stations included Bridgehampton and Brookhaven, NY. Bridgehampton is listed as 50.1 inches per year and Brookhaven is listed as 49.9 inches/year. Data entry is in inches. The more conservative lower value for Brookhaven, NY was used in this simulation.

3. *Acreage of Fertilized (SONIR allows multiple categories of fertilizer dependent vegetation to be entered)* - The total area fertilized (in acres) is entered in this Data Cell. This area includes all lawn/turf area that is irrigated and fertilized. If there is no lawn area, a value of zero (0) is entered.

4. *Fraction of Land in Fertilized* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Land in Fertilized by dividing the lawn area by total area.

5. *Evapotranspiration from Fertilized* - Evapotranspiration is the natural water loss attributed to evaporation and plant utilization. Rainwater that is evaporated and transpired by plants is returned to the atmosphere as vapor. There are various methods for determining evapotranspiration, including direct measure and calculation. A commonly recognized method is the Thornthwaite and Mather Climatic Water Budget Method. Evapotranspiration rates for various locations on Long Island have been determined by the U.S. Geological Survey, as documented in: "Ground-Water-Recharge Rates in Nassau and Suffolk Counties, New York" **(Peterson, 1987; p. 10).** The following general rates as a percent of total precipitation are excerpted from that reference:

Location	Soil Type	Vegetation	ET (in)	ET (%)
Bridgehampton	sandy loam	shallow root	21.2	46.6
	silt loam	shallow root	21.4	47.2
LaGuardia	sand	shallow root	24.2	52.9
	clay loam	shallow root	25.4	55.5
	sandy loam	moderate root	26.2	57.2
JFK Airport	sand	shallow root	22.5	53.8
	clay loam	shallow root	23.9	57.3
	sandy loam	moderate root	25.0	60.0
Mineola	sand	shallow root	22.4	47.8
	sand-silt	shallow root	23.8	51.0
	sandy loam	moderate root	25.1	53.7
	sandy loam	orchards	25.5	54.5
Patchogue	fine sand	mature forest	25.5	53.5
Riverhead	sandy loam	shallow root	22.4	49.3
		orchards	24.8	54.7
Setauket	sandy loam	mature forest	26.8	57.9
Upton	silt loam	deep root	23.9	48.4
	sandy loam	moderate root	23.0	46.5

The most applicable rate for this project is 25.5 inches per year, based on the soils and land cover associated with Patchogue, NY.

6. *Runoff from Fertilized* - Runoff is the quantity of water that travels overland during a precipitation event. Soil infiltration capacity is the critical factor in determining runoff; however, factors such as slope and vegetation also determine runoff characteristics to a lesser extent on Long Island because of soil conditions. Less urbanized areas of Long Island with characteristically dry soils with groundcover will have a low runoff percentage as a function of total precipitation, as compared to the more urbanized portions of western Long Island. Peterson **(1984; p. 14)** estimates runoff as a percent of total precipitation for Nassau County (2.1 %); Suffolk County (0.7 %), and Long Island in general (1.0 %). If an average precipitation rate of 45-50 inches per year is assumed, runoff will vary from 0.31 to 0.94 inches. Fertilized areas would be expected to be in the higher end of the range. Judgements of higher and lower runoff can be made on a site-specific basis depending upon slope and groundcover types.

7. *Acreage of Unvegetated* - The total acreage of unvegetated area is entered in this Data Cell. This area includes sand, barren soils, and porous drives and trails. If there is no unvegetated area, a value of zero (0) is used.

8. *Fraction of Land Unvegetated* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Land Unvegetated by dividing the unvegetated area by total area.

9. *Evapotranspiration from Unvegetated* - Evapotranspiration from Unvegetated areas is determined to be 30% of the evapotranspiration for vegetated surfaces due to lack of groundcover vegetation.

10. *Runoff from Unvegetated* - The runoff coefficients noted in the discussion for Data Cell 6 above, are applied to unvegetated areas on a site-specific basis. Runoff in the middle to the higher end of the range (2.1% of precipitation) is expected due to lack of groundcover vegetation.

11. *Acreage of Water (this category could include irrigation ponds and/or other surface water features)* - SONIR considers evaporation from surface water in the computation of site recharge. Surface water, particularly groundwater fed lakes and ponds are a source of water loss in the water budget. The quantity of fresh surface water (in acres) is entered in this Data Cell.

12. *Fraction of Land in Water* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Water on the site by dividing the water area by total area.

13. *Evaporation from Water* - Surface water features will cause evaporation of water in excess of normal evapotranspiration as documented by **Warren et al, 1968,** Hydrology of Brookhaven National Laboratory and Vicinity Suffolk County, New York. It is estimated that the upper limit of evaporation from a large free-water surface is approximately 30.00

inches per year **(Warren et al, 1968; p. 26).** This value is entered in Data Cell 17 as the most accurate approximation.

14. *Makeup Water* - SONIR allows for consideration of the impact of man-made lakes on site recharge. Lakes are generally lined with an impermeable material. Evaporation occurs from the surface of the lake at a rate of 30.00 inches per year. In order to maintain a constant water level, an on-site well is generally installed to provide make-up water to the lake or pond. The quantity of make-up water is equivalent to the quantity of evaporation, given the fact that the function of the well is to replace water that is evaporated. Therefore, for cases where make-up water is used to maintain a constant water level, a value of 30.00 inches per year is entered in Data Cell 18.

15. *Acreage of Natural* - The total quantity of natural area (in acres) is entered in this Data Cell. This area includes naturally vegetated areas such as woodland, meadow, etc. If there is no natural area, a value of zero (0) is entered.

16. *Fraction of Land Natural* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Land Natural by dividing the natural area by total area.

17. *Evapotranspiration from Natural* - Evapotranspiration from Natural areas is determined in the same manner as described for Data Cell 5 above.

18. *Runoff from Natural* - The runoff coefficients noted in the discussion for Data Cell 6 above, are applied to natural areas on a site specific basis. Generally lower values in the range of 0.7 % of precipitation are expected due to groundcover and canopy vegetation.

19. *Acreage of Impervious* - The total area of impervious surface (in acres) is entered in this Data Cell. This area includes paved driveways, parking areas, roofs, roads, etc. If there are no impervious surfaces, a value of zero (0) is entered.

20. *Fraction of Land Impervious* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Land in Impervious by dividing the impervious area by total area.

21. *Evaporation from Impervious* - Impervious surfaces will allow water to evaporate, particularly during summer months. There is no vegetation; therefore there is no transpiration by plants. Evaporation from Impervious is estimated to be approximately 10 % of total precipitation **(Hughes and Porter, 1983; p. 10).** This value accounts for evaporation from parking lots and other surfaces during summer months, averaged over the entire year. This indicates that recharge/runoff would comprise the remaining 90% of precipitation. This assumption coincides with most drainage computations required by Code Subdivision Regulations for determined leaching pool capacity.

22. *Runoff from Impervious* - The approximation of Evaporation from Impervious would indicate that recharge/runoff would comprise the remaining 90% of precipitation, as there are no other losses from impervious surfaces. In consideration of paved areas, runoff is not transported off the site or to surface water as a loss. Runoff is diverted to leaching

pools and allowed to re-enter the hydrologic system beneath a given site. Therefore, in terms of site recharge computations, the value for Runoff from Impervious is zero (0).

23. *Acreage of Other Area (SONIR provides this portion of the model to customize additional cover types)* - This is a general category which can be used to include additional groundcover types in the simulation. Acreage of Other Area is entered (in acres). This Data Cell can be used to include site recharge considerations from a portion of the site that has different hydrologic properties, such as rain gardens, a moist hardwood forest or vegetated freshwater wetland, where evapotranspiration would be high and runoff would be extremely low or is a placeholder to customize data input/analysis.

24. *Fraction of Land in Other Area* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Land in Other Area by dividing the land in other area by total area.

25. *Evapotranspiration from Other Area* - Evapotranspiration from Other areas is determined in the same manner as described for Data Cell 5 above. Value can be varied depending upon the hydrologic properties of the groundcover type. For rain gardens, this value would be high and similar to wetlands and surface water at 30 inches/year.

26. *Runoff from Other Area* - The runoff coefficients noted in the discussion for Data Cell 6 above, are applied to Other Areas on a site-specific basis. Value can be varied depending upon the hydrologic properties of the groundcover type. For rain gardens, no runoff would be expected.

27. *Acreage of Land Irrigated* – Use of water for irrigation purposes is an additional site recharge component not considered in any of the Data Cells above. The quantity of land irrigated on a given site is entered in this Data Cell (in acres).

28. *Fraction of Land Irrigated* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Land Irrigated by dividing the Land Irrigated area by total area.

29. *Irrigation Rate* - The rate of irrigation must be entered in this Data Cell (in inches). Hughes and Porter **(1983; p. 19)** indicated that lawn irrigation is estimated to be about 5.5 inches per year; however, many sources recommend that irrigation be used to supplement natural rainfall to ensure that at least 1 inch of water is applied per week (http://www.gardening.cornell.edu/homegardening/scene7866.html). Assuming a growing season after spring when rainfall is more abundant and summer is hotter with typically less rainfall than spring, a 16-24 week period from May through October is used, with an irrigation rate of 1 inch per week. This value (16-24 inches) is entered in Data Cell 29 as the most accurate approximation for subdivision use.

30. *Number of Dwellings* - The number of dwellings is entered in this Data Cell in order to allow for computation of wastewater disposal from residential use. Wastewater imported to a site, or even withdrawn from on-site wells and recharged through sanitary effluent is an additional recharge component that must be considered. If the project is for a

commercial use or utilizes a denitrification system, the number of dwellings should not be entered in the Data Entry Field, as the wastewater flow will include recharge and nitrogen components.

31. *Water Use per Dwelling* - The water use should correspond to the total site non-irrigation water use, divided by the number of units.

32. *Wastewater Design Flow (units)* - No entry need be made in this Data Cell. SONIR will compute the Wastewater Design Flow by multiplying the Number of Dwellings by the Water Use per Dwelling.

33. *Wastewater Design Flow* - SONIR permits the consideration of recharge and nitrogen input based on wastewater design flow if this is more appropriate than a determination based on number of units. This could include residential wastewater flow (e.g., combined units and clubhouse), commercial projects, denitrification systems and sewage treatment plants. SCDHS design flow factors are typically used to determine wastewater design flow. Once computed, the anticipated wastewater flow is entered in this Data Cell.

Site Recharge Computations - Sheet 2

Once data entry is complete for Site Recharge Parameters, SONIR will complete a series of detailed Water Budget computations for the overall site. The following describes the computations that are performed by the model:

A. *Fertilizer Area Recharge* - Fertilizer Area Recharge is determined by use of the basic Hydrologic Budget Equation [R = P - (E + Q)] as defined previously. The quantity of recharge determined by this method is then multiplied by that portion of the site occupied by Lawn Area to determine the component of Lawn Area Recharge in overall site recharge.

B. *Unvegetated Area Recharge* - Unvegetated Area Recharge is determined by use of the basic Hydrologic Budget Equation. The quantity of recharge determined by this method is then multiplied by that portion of the site occupied by Unvegetated Area to determine the component of Unvegetated Area Recharge in overall site recharge.

C. *Water Area Loss* - The Hydrologic Budget Equation is modified to consider Water Area Loss. This is particularly useful in water quantity stressed areas of Long Island. If runoff (Q) is considered be zero (0), then lake storage/recharge without make-up water would be Precipitation minus Evaporation (P - E). The resultant quantity of lake storage/recharge is then reduced by the amount of make-up water (M). The final quantity of loss is then multiplied by that portion of the site occupied by water to determine the component of water loss as related to the overall site water budget.

D. *Natural Area Recharge* - Natural Area Recharge is determined by use of the basic Hydrologic Budget Equation. The quantity of recharge determined by this method is then

multiplied by that portion of the site occupied by Natural Area to determine the component of Natural Area Recharge in overall site recharge. This area can also include land that is revegetated to natural conditions.

E. *Impervious Area Recharge* - Impervious area recharge is also determined using the Hydrologic Budget Equation; however, the value for runoff is zero (0) due to the fact that runoff is controlled by conveyance to on site leaching facilities or is allowed to runoff into depressions where runoff is recharged on site.

F. *Other Area Recharge* - Other Area Recharge is determined by use of the basic Hydrologic Budget Equation. The quantity of recharge determined by this method is then multiplied by that portion of the site occupied by Other Area to determine the component of Other Area Recharge in overall site recharge.

G. *Irrigation Recharge* - Irrigation recharge is an additional recharge component artificially added on sites where irrigation occurs. This quantity is determined in the same manner as the Hydrologic Water Budget except that the irrigation rate (in inches) is substituted for precipitation. The resultant recharge is multiplied by the area of the site that is irrigated, in order to determine the Irrigation Recharge in overall site recharge.

H. *Wastewater Recharge* - Wastewater is also a recharge component artificially added to a site. SONIR annualizes the wastewater design flow and assumes it is applied over the entire by multiplying Wastewater Design Flow by the Area of the Site, resulting in a per foot measure of wastewater over the site. This is converted to inches to be included in overall site recharge.

Once the eight (8) series of Site Recharge Computations are complete, SONIR totals each individual component to determine Total Site Recharge. The sum of these recharge contributions, is that quantity of water that is expected to enter the site on an annual basis due to precipitation, after the development is completed. This value is important in determining the concentration of nitrogen in recharge, and is important as a means of determining hydrologic impacts of a project in terms of changes to site recharge.

SITE NITROGEN BUDGET

Overview

The total nitrogen released on a given site must be determined in order to provide a means of simulating nitrogen in recharge. Nitrogen sources include: sanitary nitrogen; fertilizer nitrogen; pet waste nitrogen; precipitation nitrogen; and water supply nitrogen (wastewater and irrigation). The total of these quantities represents total site nitrogen.

Data Input - Sheet 1

The following provides a discussion of data sources and assumptions associated with the nitrogen budget, corresponding to the Data Input Field in Sheet 1 of SONIR:

1. *Persons per Dwelling* – For residential projects the number of persons per dwelling is a demographic multiplier used in the determination of human population of a site. The US Census Bureau publishes data for household population. The average population per household for the proposed project based on the Fiscal and Economic Impact Summary is 1.98 persons per dwelling. Additional sources can be consulted depending on site specific data sources.[1]

2. *Nitrogen per Person per Year* – For untreated wastewater, annual nitrogen per person is a function of nitrogen bearing waste in wastewater. For residential land use the population of the development is determined and the nitrogen generated is assumed to be 10 pounds per capita per year **(Hughes and Porter, 1983; p. 8).** This value is also consistent with LINAP assumptions.

3. *Sanitary Nitrogen Leaching Rate* - For normal residential systems, Porter and Hughes report that 50% of the nitrogen entering the system is converted to gaseous nitrogen and the remainder leaches into the soil **(Porter and Hughes, 1983; p. 14).** LINAP provides updated values for leaching from a conventional sanitary system, finding that there is 6% loss/attenuation from the septic tank and 10 percent attenuation from leaching rings/plume, indicating an 84% leaching rate. This rate is used for conventional sanitary system leaching.

4. *Area of Land Fertilized 1* - The area of land fertilized is input in Data Cell 4. This value may correspond to the Acreage of Lawn and/or the Acreage of Land Irrigated, but is not necessarily the same value. This entry should be determined on a site-specific basis.

5. *Fertilizer Application Rate 1* - Fertilizer nitrogen is determined by a fertilizer application rate over a specified area of the site. The fertilizer application rates vary depending upon the type of use. The following table indicates the rate of fertilization as a function of use as excerpted from the Non-Point Source Management Handbook **(Koppelman, 1984; Chapter 5, p.6):**

[1] http://www.census.gov/quickfacts/table/ y

Residential (contract)	1.5 lbs/1000 sq ft
Residential (unmanaged)	2.3 lbs/1000 sq ft
Commercial	3.5 lbs/1000 sq ft
Golf Course	3.5 lbs/1000 sq ft
Sod Farms	4.0 lbs/1000 sq ft
Recreational Lands	0.2 lbs/1000 sq ft

If a use has a Fertilizer Management Plan then the plan should be consulted for application rates. In addition, a commercial landscaping firm has been interviewed to determine trends in commercial fertilizer application. Various fertilizer formulations are used including 10-6-4, 16-4-8 and 20-10-5 (nitrogen-phosphate-potash) depending upon season. Heavier nitrogen application rates are generally used in the spring. Fertilizer used is 50% organic nitrogen. This is applied in a dry form approximately 2-3 times per year, and a 50-pound bag is applied over approximately 16,000 square feet. Based on this rate if 20-10-5 nitrogen were applied in the spring, and 16-4-8 were applied during summer and fall, this would result in an application rate of 1.5-2.1 pounds per 1000 square feet. The high of this range is a conservative value based on three applications of relatively high nitrogen fertilizer. Judgment must be used to determine the application rates per above and further review of references as appropriate or for specific instances. LINAP fertilization rates are found in **Attachment B**; however, there is no rate for commercial application.

For agricultural use, Porter & Hughes **(1983)** provides information on N-fertilizer application rates that were researched for the study "Land Use and Groundwater Quality in the Pine Barrens of Southampton." Various farm uses were assessed and it was found that nurseries fertilized at a rate of 168.3 lbs/acre of nitrogen (or 3.86 lbs/1000 SF), potato forms applied 175 lbs/acre of nitrogen (4.02 lbs/1000 SF) and vegetable crops applied 140 lbs/acre of nitrogen (3.21 lbs/1000 SF). Conversation with the Kracke family farm finds that they apply minimal fertilizer to establish root growth and plant health. Other advancements in farming practice are expected to have occurred, such that application rates are less than what was found in 1983.

6. *Fertilizer Nitrogen Leaching Rate 1* - Nitrogen applied as fertilizer is subject to plant uptake (20 to 80%; 50% on average) and storage in thatch and soils (36 to 47%), thereby reducing the total amount of nitrogen leached. The percentage of plant uptake and storage are based on studies cited in the LIRPB's Special Groundwater Protection Area Plan. Those studies estimated a conservative nitrogen leaching rate of 14-15%. Further work by the Cornell University School of Integrative Plant Science, Horticulture Section was consulted as well as references from A. Martin Petrovic, Ph.D. at Cornell University. References specifically note that nitrogen leaching from turfgrass ranges were generally less than 10% **(1990, Petrovic, A.M.).** Further review of references from this source finds a useful comparison of turfgrass fertilizer leaching rates from various land cover types including golf courses and lawns. When considering four (4) field studies of golf course fertilizer nitrogen leaching, the leaching rates ranged from 0.02% to 13.2% and averaged 3%. When considering field studies for lawn nitrogen leaching rates, the average was 9.61% **(2008, Petrovic, A.M.)**. The purpose of the document was to advise

the Massachusetts Estuary Program on appropriate turfgrass leaching rates for the Pleasant Bay Region on Cape Cod.[2] A previously used leaching rate of 20% was found to be excessive by a factor of 2. Though lawn and golf course leaching rates were not substantially different, the results did identify residential lawns as having a higher leaching average leaching rate based on field studies. Local conditions should be considered in terms of the level of detail needed for nitrogen budget analysis; however, a range of 5% for golf courses (noted to be greater than the average of 3% from field studies) and 10% for general lawn turf is supported by field studies researched. LINAP leaching rates are found in **Attachment B**; however, there is no rate for commercial leaching.

7. *Area of Land Fertilized 2* - More than one fertilizer nitrogen input is provided in order allow consideration of mixed use and/or golf course projects where land is fertilized at different rates.

8. *Fertilizer Application Rate 2* - Fertilizer Application Rates for this entry can be determined based upon Data Cell 5 above.

9. *Fertilizer Nitrogen Leaching Rate 2* - Fertilizer Nitrogen Leaching Rates can be determined based upon Data Cell 6 above.

10. *Outdoor Cat Population* – This section of SONIR considers LINAP information for pet waste nitrogen. Pet waste nitrogen results from the excretion of domestic pets in the outside environment. There is relatively little definitive information concerning this nitrogen source; however, several references were located and are analyzed herein. The 208 Study provides a table of nitrogen concentration in manure for various animals, not including dogs or cats. Total nitrogen values in the range of 0.30-0.43 lbs/day/1000 lbs live weight are reported for cattle, sheep and horses **(Koppelman, 1978; Animal Waste report p. 3).** It is assumed that dogs constitute the major source of animal waste that would be present in the yards of residential developments. Cat waste would be significantly less due to the lesser live weight of cats and the fact that many cat owners dispose of cat waste in solid waste by using an indoor litter box. If an average of 0.35 lbs of nitrogen is assumed for dogs, and an average of 25 pounds live weight is assumed per dog, then the total annual nitrogen per pet would be 3.19 lbs/year. The only other reference identified for this User Manual that approximates nitrogen in pet waste is Land Use and Ground-Water Quality in the Pine Barrens of Southampton **(Hughes and Porter, 1983; p. 10).** This reference assumed an application rate of 6.5 lbs/acre of nitrogen. Pet waste was assumed to be deposited evenly over all turf. This assumption was not correlated to population density or pet density, but only to turfed acreage. In comparison of the two values, the per pet value corresponds to approximately 2 turfed acres. For the purpose of this model, the value of 3.19 lbs/pet/year is considered to be the most justifiable value for pet waste and is entered in this Data Cell.

[2] Hydrogeologic conditions on Cape Cod are similar to Long Island due to glacial origin, bays and estuaries.

Pet waste is also subject to a leaching rate factor. Pet waste is generally found to be a minor contributor of nitrogen in an overall nitrogen budget. A conservative leaching rate of 50% of the nitrogen applied to the ground to be removed through N reduction processes.

LINAP examined pet waste and has revised some of the assumptions that came from prior reports based on a metadata search of available literature through January 2017. LINAP estimates indoor and outdoor cat populations at 1.16 cats/household and 0.74 cats/household, respectively, and an outdoor dog population of 1.4 dogs/household. LINAP further estimates the pounds of nitrogen per year at 3.22 lbs/year for cats and 4.29 lbs/year for dogs, and further estimates a volatilization rate of 75% or a leaching factor 25%. These updated assumption values are used in this document, subject to consideration of the type of land use anticipated. Single family residential use would be expected to have a higher population of cats, and greater potential for outdoor occupancy. Multiple family use would be expected to have a lower population of cats and a lower likelihood of outdoor occupancy, with more indoor cats and therefore greater use of litter boxes and alternative disposal of cat waste (i.e., landfill disposal as compared to land surface defecation). For multiple family use, a lower cat population would be expected, and some uses may prohibit cats.

11. *Cat Waste Nitrogen Load* - This is quantified as 3.22 lbs/year of nitrogen per cat for outdoor cats per LINAP. This would apply to single family residential use. For multiple family use, indoor cats are assumed.

12. *Outdoor Dog Population* – This is quantified as 1.4 dogs/household per LINAP. This would apply to single family residential use. For multiple family use, a lower dog population (25% of total) would be expected, and some uses may prohibit dogs.

13. *Dog Waste Nitrogen Load* – This has been updated to 4.29 lbs/year of nitrogen per dog per LINAP. This would apply to single family residential use. For multiple family use, less dogs as well as effective "pick up after your pet" programs are assumed, resulting in one-half the expected Dog Waste Nitrogen Load, or 2.15 lbs/year.

14. *Pet Waste Nitrogen Leaching Rate* – This has been updated to 25% based on LINAP assumptions, which seem reasonable due to waste deposited on the ground and subject additional "weathering" and volatilization in the surface environment prior to recharge.

15. Adjusted Pet Waste (if applicable)(days/year occupied) – This entry allows for an adjustment for seasonal communities where year round occupancy is not expected. An estimated occupancy rate is inserted in this cell.

16. *Area of Land Irrigated* - No entry need be made in this Data Cell. This value is the same as Data Cell 27 of the Site Recharge Parameters and SONIR will transfer the data entry to this Cell.

17. *Irrigation Rate* - No entry need be made in this Data Cell. This value is the same as Data Cell 29 of the Site Recharge Parameters and SONIR will transfer the data entry to this Cell.

18. *Irrigation Nitrogen Leaching Rate* - Hughes and Porter **(1983; p. 10)** states "plant uptake and gaseous losses are assumed to remove at least 85% of the nitrogen entering in precipitation." Irrigation nitrogen would be expected to be subject to the same losses as applied to fertilizer leaching; therefore, a leaching rate in the range of 10-15% can be assumed and entered in this Data Cell.

19. *Atmospheric Nitrogen Application/Load* – This section of SONIR is changed from the Draft EIS, based on LINAP information. The Draft EIS assessed Precipitation Nitrogen using the concentration of Nitrogen in Precipitation and the Precipitation Nitrogen Leaching Rate described in the Draft EIS as follows: "*Nitrogen in Precipitation* - Groundwater nitrogen is partially derived from rainwater. Nitrate-nitrogen concentrations in precipitation have been reported to be on the order of 1-2 mg/l in Nassau and Suffolk Counties **(SCDHS, 1987; p. 6-4)**, with some evidence of decrease since preparation of the SCCWRMP. A conservative value of 0.75 mg/l was used." "*Precipitation Nitrogen Leaching Rate*, which was described as follows: "A slightly higher nitrogen leaching rate may be appropriate for precipitation which falls generally on natural as well as turfed surfaces. While turfgrass leaching has been extensively documented and found to reduce leaching as a result of plant uptake and thatch/root zone processes, natural areas in sandy soils may result in less uptake. A factor of 15% is applied to precipitation nitrogen as based on Hughes and Porter) **(1983; p. 10)**." For the Draft EIS, there was also a *Nitrogen in Water Supply* factor, described as follows: "The concentration of Nitrogen in Water Supply determines the quantity of nitrogen that enters the site as a result of irrigation nitrogen and wastewater flow. Local water supply data should be utilized if available, otherwise a value of between 1 and 2 mg/l could be utilized."

    LINAP has conducted more updated research regarding Atmospheric Deposition. An Atmospheric Deposition Application/Load is assumed to be 0.041 lbs/1000 SF of land area. This is then subject to various leaching rates depending on the type of groundcover.

20. *Atmospheric N Leaching Rate (Natural/Wetlands)* – The estimated leaching rate value for natural area/wetlands is 25% per LINAP.

21. *Atmospheric N Leaching Rate (Turf 30%/Golf 20%)* – The estimated leaching rate value for turfed areas is 30% and for golf course turfed areas is 20% per LINAP.

22. *Atmospheric N Leaching Rate (Agriculture; Impervious; Other)* - Agricultural land leaching is estimated to be 40% as are other surfaces not specifically identified as natural, wetlands, turf or golf turf.

23. *Nitrogen in Water Supply* – An entry cell for nitrogen in water supply is provided if this is needed for analysis.

24. *Nitrogen in Commercial/STP Flow 1* - This data entry allows SONIR to compute the quantity of nitrogen resulting from commercial discharge, denitrification systems and/or sewage treatment plants. Total nitrogen in community wastewater is identified as having a total nitrogen concentration of 20 mg/l in weak effluent; 40 mg/l in medium strength effluent, and 85 mg/l in strong effluent **(Metcalf & Eddy, Inc, 1991).** It is recommended that a value of 50 mg/l be used for total nitrogen concentration in sanitary systems. Properly functioning denitrification systems and sewage treatment plants are capable of reducing total nitrogen to less than 10 mg/l in accordance with discharge limitations. A value of 10 mg/l can be entered in this data cell for such systems or other applicable value dependent on specific treatment efficiencies. Alternative wastewater systems for single family homes are being considered in Suffolk County; such systems are achieving treatment to reduce nitrogen to the range of 19 mg/l. The SONIR model computes the number of pounds of nitrogen in sanitary discharge as a function of concentration. The absolute nitrogen is utilized in the model; however, it must recognized that from the discharge point, nitrogen is nitrified through conversion of ammonia to nitrate in the leaching area beneath the discharge point. Further, natural transformation in the form of denitrification occurs as a result of bacteria. This causes release of nitrogen gas and may account for further reduction of 50% or more subsequent to discharge **(Canter and Knox, 1979; pp. 77-78; Hughes and Porter, 1983; p. 14).** As a result SONIR is conservative in predicting the concentration of nitrogen in recharge, and when natural denitrification of sanitary effluent is considered, actual concentration would be less.

25. *Nitrogen in Commercial/STP Flow 2* – An additional entry cell is provided for an alternative concentration should this be needed for analysis.

Site Nitrogen Budget - Sheet 2

Once data entry is complete for Nitrogen Budget Parameters, SONIR will complete a series of detailed computations to determine the individual component of nitrogen from each source and the total nitrogen for the overall site and use. The following describes the computations that are performed by the model:

A. *Sanitary Nitrogen - Residential* - SONIR establishes the site population using the number of units on the site, and the demographic multiplier. The nitrogen load factor is then applied and reduced by the leaching rate, resulting in the total residential nitrogen component. If the project is for a commercial use or residential sanitary wastewater flow is used to determine nitrogen from residential, then the resultant value should be zero (0).

B. (B) *Cat Waste Nitrogen* – The pet waste nitrogen was determined on a per pet basis; however, the number of pets for a given residential project must be determined. In order to correlate the number of pets to human population, a ratio was determined using information contained in the 208 Study, wherein it was

estimated that there is 1 dog per 5 residents in suburban areas and 1 dog per 7 residents in urban areas **(Koppelman, 1978; Animal Waste Report, pp. 6).** This results in an average number of dogs based upon of 17% of the human population. Accordingly, this multiplier is used based upon the population of a land use project in order to estimate the nitrogen waste from pets. The pet waste nitrogen is subject to reduction as a function of the leaching rate, leading to the total pet waste nitrogen in pounds."

Updated analysis s provided based on LINAP assumptions which determine both Cat Waste and Dog Waste Nitrogen by using an updated pet population (number of pets per dwelling), an updated pet waste nitrogen load and an updated leaching rate. Cat Waste Nitrogen uses the numbers inserted in the Nitrogen Budget Parameter sheet in SONIR as described above.

(B') *Dog Waste Nitrogen* - Dog Waste Nitrogen is also determined by using an updated pet population (number of pets per dwelling), an updated pet waste nitrogen load and an updated leaching rate. Dog Waste Nitrogen uses the numbers inserted in the Nitrogen Budget Parameter sheet in SONIR as described above.

C. *Sanitary Nitrogen (Commercial/STP)* - SONIR utilizes the Commercial/STP Flow that is converted to liters and multiplied by the nitrogen concentration in waste. This provides a weight of nitrogen in milligrams, which is converted to pounds for the total nitrogen from this component.

D. *Water Supply Nitrogen* (other than wastewater, if applicable) - SONIR utilizes the residential wastewater design flow to compute the weight of nitrogen contributed from the water supply. The method of calculation is the same as Sanitary Nitrogen (Commercial/STP). For commercial projects, this value is accounted for in the Commercial/STP Flow and as a result, the value is zero (0).

E. *Fertilizer Nitrogen 1 (Fertilized Landscaping)* - This calculation utilizes data entry from the Area of Land Fertilized 1, in the Data Input Field, to determine the weight of fertilizer nitrogen applied to the area. The area is multiplied by the application rate and reduced by the leaching rate documented previously to arrive at total weight.

F. *Fertilizer Nitrogen 2 (Optional Fertilization Rate)* - If fertilization rates vary, the Area of Land Fertilized 2, is utilized to determine nitrogen from this source.

G. *Atmospheric Nitrogen* – Updated analysis is provided based on LINAP assumptions which determine Atmospheric Deposition using the Nitrogen Budget Parameters outlined above. The deposition rate of 0.041 lbs/1000 SF is multiplied by the square footage of each cover type, and then subject to an individual

leaching rate based on the cover type. Section G computes the resultant Atmospheric Deposition.

H. *Irrigation Nitrogen* - Although a very small component, the Irrigation Nitrogen is determined using the Irrigation Recharge R(irr) computed in the Site Recharge Computations, over the irrigated area of the site to produce a volume of irrigation recharge. The Irrigation Recharge value is used in order to account for reduction of recharge due to evapotranspiration, since this component is only intended to determine nitrogen leaching into soil as a result of irrigation nitrogen in the water supply. This value is converted to liters and multiplied by the concentration of nitrogen in irrigation water supply. The Irrigation Nitrogen Leaching Rate (expected to the same as for precipitation) is applied to the weight to determine the total nitrogen from this source.

Once the eight (8) series of Site Nitrogen Budget computations are complete, SONIR totals each individual component to determine the Total Site Nitrogen. This value is used in determining the weight per volume ratio of nitrogen in recharge as computed in Sheet 4 of the SONIR model.

FINAL COMPUTATIONS, SUMMARY AND MITIGATION

SONIR utilizes data generated in Sheets 2 and 3 of the model to compute a mass/volume ratio for nitrogen in recharge. Nitrogen in recharge is converted from pounds to milligrams in order to provide units compatible for mass/volume concentration. Likewise, the quantity of site recharge is applied over the site in order to determine an overall volume number for site recharge. This is then converted to liters. The final computation divides the total weight of nitrogen in milligrams, by the total volume of recharge in liters, to arrive at the Nitrogen in Recharge ratio in milligrams per liter (mg/l). This concentration represents the Final Concentration of Nitrogen in Recharge, which is highlighted on Sheet 4.

Sheet 4 also provides a site recharge summary in order to compare recharge between natural conditions, a proposed project and/or alternatives. Total Site Recharge is presented in both inches, and as a volume in cubic feet/year, gallons/year and million gallons/year (MGY). The final sheet also summarizes the Conversions Used in SONIR. Conversions are standard conversion multipliers as found in standard engineering references.

An additional function of SONIR is to estimate potential nitrogen reduction strategies through mitigation which may be employed through project design. Mitigation computations may include: off-site treatment, reuse of irrigation water, rain gardens, etc..

Mitigation noted above is totaled and compared between unmitigated and mitigated nitrogen load.

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SONIR is a valuable tool allowing for versatile determination of site recharge as determined from many components of site recharge. SONIR determines the weight of nitrogen applied to a site from a variety of sources as well. SONIR is a fully referenced model utilizing basic hydrologic and engineering principals, in a simulation of nitrogen in recharge. Input data should be carefully justified in order to achieve best results. SONIR can be used effectively in comparing land use alternatives and relative impact upon groundwater due to nitrogen. By running the model for Existing Conditions, Proposed Project conditions and/or alternative land uses, comparison of impacts can be made and mitigation can be evaluated for consideration in land use decision-making. Questions, comments or suggestions concerning this model should be addressed to: Nelson, Pope & Voorhis, LLC, 572 Walt Whitman Road, Melville, New York 11747.

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

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ATTACHMENT A

NP&V QUALIFICATIONS

NELSON, POPE & VOORHIS, LLC
WATERSHED ANALYSIS, SEQRA & PHASE I/II TESTING
QUALIFICATIONS STATEMENT

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ABOUT NELSON, POPE & VOORHIS...

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STORM WATER MANAGEMENT PLANS
WATERFRONT & COASTAL ZONE PROJECTS
MAPPING
WATERSHED MANAGEMENT & WATER SUPPLY
PERMITTING & PROCESSING
SUSTAINABILITY & LEED
PROJECT PLANNING & SUPPORT

Nelson, Pope & Voorhis, LLC (NP&V) was formed in 1997 and has grown in capabilities and size since that time. The merging of Charles Voorhis & Associates (13 year history) with Nelson & Pope (a 50-year tradition in engineering and related services) created an environmental planning firm with a wealth of experience to bring to complex environmental problem solving, planning and feasibility, resource assessment and site investigations.

NP&V serves governmental and private sector clients in preparing creative solutions in the specialized area of complex environmental project management and land use planning and analysis.

Nelson, Pope & Voorhis has the benefit of knowledge of local issues, local resources, and the passion to provide the very best solutions and strategies for the local area. This provides unparalleled knowledge of the application of the community planning process, comprehensive planning and SEQRA/NEPA Administration. The result is a team of highly compatible land use professionals that will get the job done in a manner that ensures real and implementable solutions.

NP&V employees are recognized as experts in environmental, land use and planning issues and have provided consulting services to various municipalities. NP&V encourages continuing education through participation in conferences and seminars for all staff and holds regular training luncheons utilizing APA and other training packages.

Nelson, Pope & Voorhis has a capable staff of professionals, including planners and economic analysts, ecologists, hydrologists, wetlands specialists and environmental professionals. When integrated with technical staff of Nelson & Pope, the team is expanded to include civil, sanitary and transportation engineers and land surveyors.

Nelson, Pope & Voorhis would appreciate the opportunity to discuss how we can assist you in achieving your goals. We are committed to providing quality environmental, planning and consulting services to all clients. This statement of qualifications is an introduction to the many services we provide with a focus on municipal services; the following pages contain a more detailed presentation of services offered by Nelson, Pope & Voorhis, as well as a sampling of completed projects and key staff resumes.

Call us at (631) 427-5665. We welcome the opportunity to serve your environmental, planning and consulting needs.

NELSON POPE & VOORHIS

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MORE ABOUT NELSON, POPE & VOORHIS...

ENVIRONMENTAL PLANNING CONSULTING

MUNICIPAL PLANNING
SEQRA COMPLIANCE
HARBOR MANAGEMENT PLANNING
FEASIBILITY STUDIES
DUE DILIGENCE ASSISTANCE
REGIONAL PLANNING
ECONOMIC PLANNING
ENVIRONMENTAL SITE ASSESSMENT
ENVIRONMENTAL SCIENCE & ANALYSIS
WETLAND PERMITTING
STORM WATER MANAGEMENT PLANS
WATERFRONT & COASTAL ZONE PROJECTS
MAPPING
WATERSHED MANAGEMENT & WATER SUPPLY
PERMITTING & PROCESSING
SUSTAINABILITY & LEED
PROJECT PLANNING & SUPPORT

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Charles Voorhis is managing partner and is a member of the American Institute of Certified Planners (AICP) and is a Certified Environmental Professional (CEP), having over 30 years of experience in environmental planning on Long Island and the New York area. Mr. Voorhis oversees the business in terms of management, marketing and expertise, provides expert testimony in hearings and court proceedings, and ensures that client needs are served to the best of the firm's ability.

The firm has significant expertise in applied use of the State Environmental Quality Review Act (SEQRA) and National Environmental Policy Act (NEPA) with understanding of the practical and legal use of these laws from both the private and municipal perspective. Staffing includes environmental professionals assembled to work together as a team with complementary expertise and interests. NP&V personnel maintain wildlife collection permits in New York State, and are active contributors to the Long Island Geographic Information System (GIS) user group meetings and publications.

The firm has developed a number of copyright protected computer models for environmental analysis in the areas of: wildlife and ecology; water budget analysis and groundwater impacts; economic and market analysis; and stormwater impact prediction. The reports and graphics generated for projects are high in quality and professionally prepared through the use of state-of-the-art technology in digital aerial photography, geocoding and mapping of site features using differential global positioning systems (GPS), AutoCAD analysis/mapping, ESRI geographic information systems (GIS) programs including ArcMap and 3D Analyst and Spatial Analyst, custom spreadsheet models for regional land use impact assessment, and related technological tools for advanced data management and word processing. The seamless integration of environmental and engineering services with Nelson & Pope is accomplished by direct communication and computer networking to ensure that projects are managed through the review process to the development stage.

NP&V features three divisions, created to better serve clients with high quality, innovative and responsive consulting

Nelson Pope & Voorhis

The Three Divisions of NP&V...

Environmental Planning Consulting

Municipal Planning
SEQRA Compliance
Harbor Management Planning
Feasibility Studies
Due Diligence Assistance
Regional Planning
Economic Planning
Environmental Site Assessment
Environmental Science & Analysis
Wetland Permitting
Storm Water Management Plans
Waterfront & Coastal Zone Projects
Mapping
Watershed Management & Water Supply
Permitting & Processing
Sustainability & Leed
Project Planning & Support

The division of **ENVIRONMENTAL & COMMUNITY PLANNING** specializes in comprehensive local and regional planning. Technology is key in today's planning field and NP&V continues to keep pace with the most current tools available for planning applications. Use of Geographic Information System (GIS) software, 3D Analyst, ArcScene and Spatial Analyst, as well as CommunityViz (3-D simulation and analysis software), architectural SketchUp (modeling software), AutoCAD, and planning and analysis software and spreadsheets, results in rapid, accurate and high quality data, analysis, illustration and reporting. This division conducts planning studies, revitalization plans, community development/public participation activities, and human resource analysis including noise, air, demographic, socio-economic and visual resource assessment (including 3D simulations, photo simulations and shadow studies). The division is directed by Kathryn Eiseman, AICP and includes planners, economic analysts and GIS specialists with environmental, planning and architectural backgrounds.

The division of **ENVIRONMENTAL RESOURCE & WETLANDS ASSESSMENT** provides quality services in the preparation of Environmental Impact Statements (EIS's), Environmental Assessments (EA's), planning and zoning law review and preparation, stormwater permitting and erosion control compliance, and wetland delineation, assessment, mitigation and permitting. This division is headed by Carrie O'Farrell, AICP and has a capable staff including environmental scientists, wetland ecologists and environmental professionals to ensure timely delivery of quality products.

The division of **PHASE I/II ASSESSMENTS & REMEDIATION** performs Phase I and II Environmental Site Assessments (ESA's), voluntary cleanup, brownfields cleanup, RI/FS and all aspects of site remediation and investigation. The division is headed by Steven McGinn, CEI a member of Nelson & Pope's environmental services branch for 13 years with significant experience in preparation of Phase I/II ESA's field investigations and remediation. This division includes a staff of hydrogeologists and environmental professionals and coordinates required field equipment and laboratory services. NP&V has performed large and small assessments and provides the fastest possible turnaround to meet due diligence periods and deadlines which are often a factor in real estate transactions. NP&V Phase I/II ESA services are known and accepted by lending institutions throughout the tri-state area. NP&V owns, maintains and operates GPR (Ground Penetrating Radar) and PowerProbe units to provide expanded services in site investigations. A description of NP&V qualifications and resumes of personnel proposed for the project and specific project experience is included in the

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Summary of Services...

Environmental Planning Consulting

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SEQRA Compliance
Harbor Management Planning
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What we do at Nelson, Pope & Voorhis...

- **SEQRA/NEPA Compliance and Environmental Analysis:** Environmental impact statements (EIS); assessment forms (EAF); ecological and wildlife studies; noise and air emission impact studies; and compliance with Federal, State & local environmental regulations & laws.

- **Municipal Planning:** Full environmental and planning review services for municipalities including site plan and subdivision review, zoning board review and SEQRA Administration.

- **Regional and Community Planning:** Conceptual site development planning; public outreach: visioning workshops and charrettes; development alternatives; zoning; site yield studies; build-out analysis; visual analysis (3-D modeling; photo simulations) and comprehensive regional and hamlet planning studies.

- **Feasibility and Due Diligence Assistance:** Comprehensive research into site development related issues affecting project implementation, timing and costs.

- **Economic Planning:** Fiscal and economic impact analyses, market analyses & feasibility studies, economic development strategies, niche market and branding planning, tax base analysis, housing incentives and programs and community development.

- **Grants Administration:** Preparation of federal and state funded municipal grant applications, project management; including the preparation of all reporting documents.

- **Environmental Site Assessment:** Phase I, II and III environmental site assessments; geophysical surveys; remedial investigation and feasibility studies; Brownfield investigations; voluntary cleanup program; oil spill closure; asbestos and lead testing and abatement.

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Summary of Services...

Environmental Planning Consulting

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- **Soil Borings & Subsurface Investigations:** Soil borings, Ground Penetrating Radar; groundwater investigations, modeling; and flow studies; monitoring well and peizometer installation.

- **Storm Water Management Plans (SWPPPS):** Design of management plans for storm water and erosion control compliance with latest Federal and State regulations; preparation and processing of NOI; and site compliance during construction…

- **Waterfront and Coastal Zone Projects:** Planning; permitting of waterfront improvement projects; water quality data management and studies; and docking facilities…

- **Mapping:** Inventory of physical features; GIS mapping; data management and analysis; and ground penetrating radar for identification of subsurface conditions…

- **Watershed Management and Water Supply:** Comprehensive regional watershed and water supply management and planning studies…

- **Permitting and Processing:** Preparation and processing of environmental applications for submittal; client representation before municipal agencies and departments and expert testimony for legal support and hearings…

- **Wetland Permitting:** Flagging and identification of fresh water and tidal wetlands; preparation of wetland permitting; and wetland restoration plans.

Nelson, Pope & Voorhis has the benefit of knowledge of local issues, local resources, and the passion to provide the very best solutions and strategies for the local area. This provides unparalleled knowledge of the application of the community planning process, comprehensive planning and SEQRA Administration. The result is a team of highly compatible land use professionals that will get the job done in a manner that ensures real and feasible solutions.

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PROJECTS

Nelson Pope & Voorhis

North Shore Embayments Watershed Management Plan Suffolk County

Environmental Planning Consulting

Feasibility & Due Diligence Assistance
Regional & Site Planning
Economic Planning
Environmental Site Assessment
Environmental Science & Analysis
Wetland Permitting
Storm Water Management Plans
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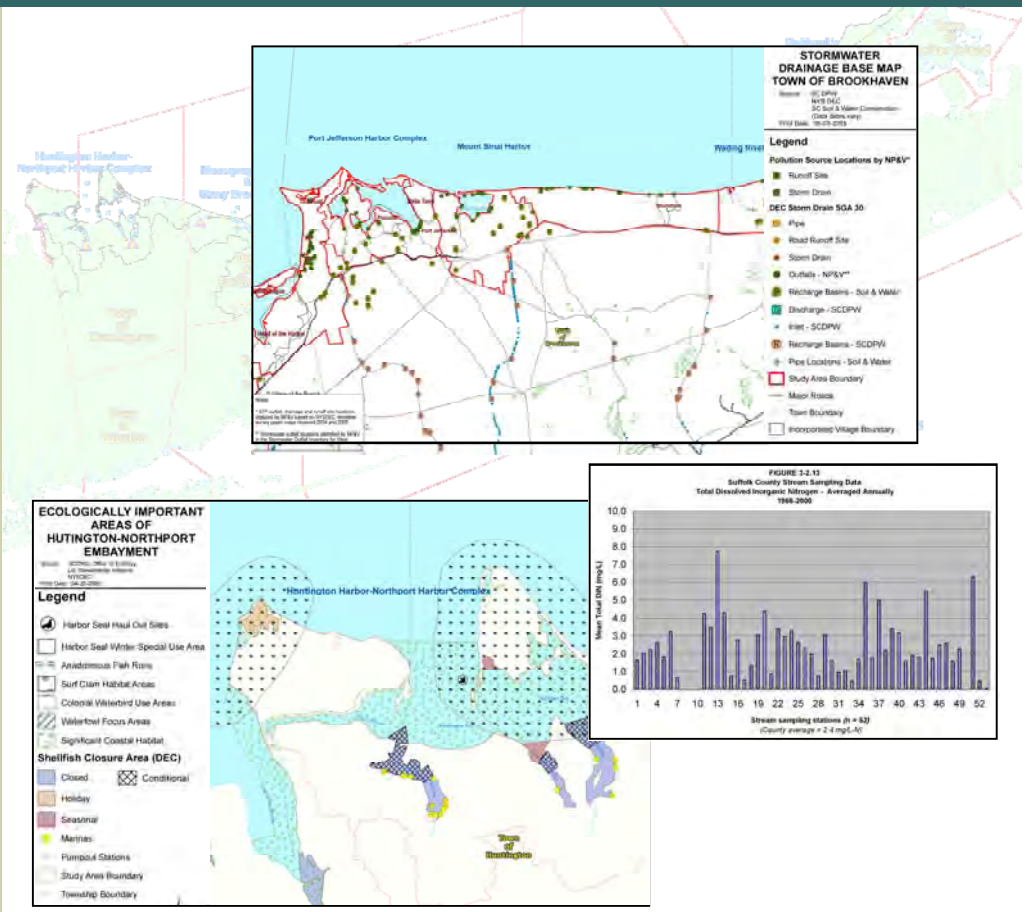

Completed an intensive watershed study for the north shore of Suffolk County to estimate existing pollution loads and develop a plan that would allow Suffolk County to reduce 58.5 % of its nitrogen load to Long Island Sound by 2014. Nelson, Pope & Voorhis (NP&V) used GIS technology to collectively look at decades of surface and ground water quality data, consider sensitive natural resource areas, land use and soils, storm drainage systems, sewered vs. non-sewered areas, population growth, and ultimately determine point and nonpoint source pollution loads from priority subwatersheds. NP&V developed a tax parcel-based spatial model to estimate past, current and future nitrogen loads from individual pollution sources (i.e. sewage treatment plants, septic systems, lawn fertilizers, agricultural fertilizers, road runoff etc.) and determine the sources of nitrogen that could most effectively and economically be managed.

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NYSDOS
South Shore Estuary Reserve
Fish Barrier Inventory

Environmental Planning Consulting

Feasibility & Due Diligence Assistance
Regional & Site Planning
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Environmental Site Assessment
Environmental Science & Analysis
Wetland Permitting
Storm Water Management Plans
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Permitting & Processing

NP&V has inventoried and assessed potential barriers to fish passage as part a study funded by the NYS Department of State and South Shore Estuary Reserve (SSER) through the Environmental Protection Fund. In an effort to restore the historic habitats of diadromous fish (such as alewife, American eel and sea-run trout) in the tributaries of Great South Bay, the project goal was to inventory stream crossings and barriers such as dams to develop a prioritization strategy for the removal or modification of structures which inhibit fish passage to their spawning grounds. Stream assessments (e.g. crossing & dam location/size, in-stream and riparian habitat assessments) and related information (e.g. watershed land use, barrier owner information) were incorporated into a GIS database to aid this prioritization assessment. The fish barrier database can now be easily expanded to include inventories of additional streams within the region, as well as to track the progress of habitat restoration initiatives, including dam removals and installation of fish ladders. Streams evaluated include: Carll's River, Brown's River, Swan River, Mud Creek, Beaver Dam Creek and the Carman's River.

Additionally, NP&V prepared a Watershed Management Plan for Beaver Dam Creek.

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Great Cove Watershed Management Plan & Stormwater Improvements
Town of Islip

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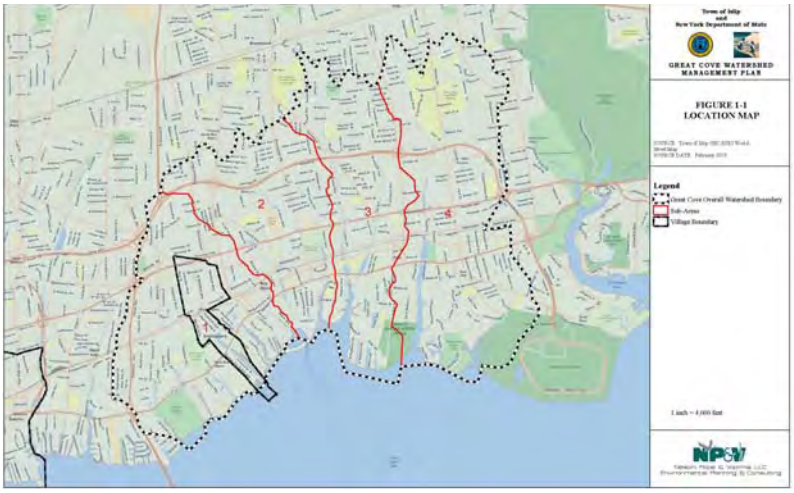

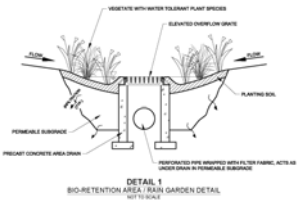

NP&V prepared the Great Cove Watershed Management Plan for the Town of Islip (funded by the NYSDOS). Great Cove includes the western half of the Town's frontage on the Great South Bay, with a 16,000+ acre drainage contributing area comprised of industrial, commercial and higher population suburban areas constructed prior to 1970. Many areas within the watershed have high groundwater conditions, extensive impervious cover and drainage infrastructure and collection systems that discharge directly to Great Cove and the creeks tributary to it. The Management Plan focuses on improvement of water quality through the identification, control and reduction of non-point source pollution. Sixteen conceptual designs for drainage improvement projects within the watershed were prepared. Drainage improvement designs included use of green infrastructure techniques such as bio-retention areas, vegetated swales, pervious pavement, and various infiltration designs. Conceptual designs and estimated construction costs were prepared for each location. Additionally, the project included a review of municipal operations and best management practices identified for salt storage, truck washing, roadway and stormwater system maintenance, and highway yard storage and drainage.

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Lake Montauk Watershed Management Plan Town of East Hampton

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Permitting & Processing

NP&V completed the Lake Montauk Watershed Management Plan for the Town of East Hampton (funded by the New York State Department of State). NP&V worked with the Town and CCE (who conducted surface water sampling and DNA analysis, as well as eel grass surveys and habitat assessments) to prepare a complete characterization of the Lake, gather input from the WMP advisory committee and furnish recommendations for watershed management. The upland contributing drainage areas to Lake Montauk are comprised of primarily residential uses with some commercial uses, marinas and yacht clubs located along or in immediate proximity to the waterfront. Many areas within the watershed have high groundwater conditions, poorly draining soils, and aged sanitary systems that impact the health of the Lake. The Management Plan focuses on improvement of water quality through the identification, control and reduction of non-point source pollution. Additionally, recommendations considered potential direct sanitary discharge to the Lake as evidence suggested contribution of coliform due to sanitary system failure. An implementation matrix that included sources of grant funding was prepared to aid in simple and rapid implementation of recommendations by the Town. The project was completed in July 2014.

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Peconic Estuary Inter-municipal Stormwater Management Services (MS4) Suffolk County

Environmental Planning Consulting

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Regional & Site Planning
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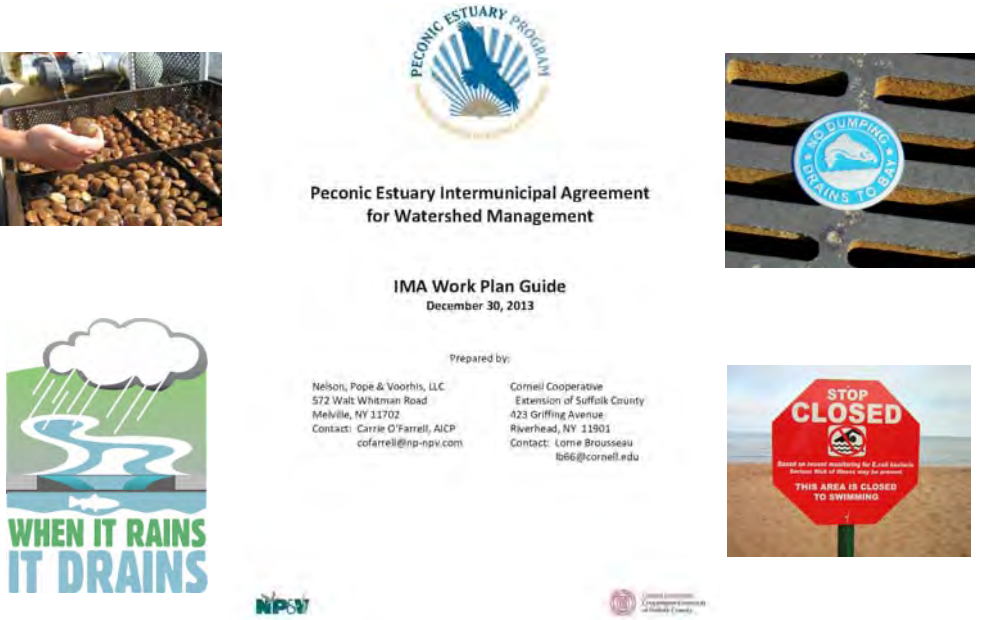

The Peconic Estuary Program (PEP) retained NP&V, working with Cornell Cooperative Extension of Suffolk County (CCE), to establish an inter-municipal agreement (IMA) to establish collaboration efforts of 12 east end municipalities, Suffolk County and the NYS Department of Transportation to work together towards water quality improvements in the Peconic Estuary. The intention of the IMA was to establish a collective effort to secure funding and provide cost-saving implementation of water quality improvement programs and projects to benefit the Peconic Estuary. This effort involved regular meetings with representatives from all the municipalities/entities within the surface water contributing area of the Peconic Estuary, as well as meetings with each of the municipal governing boards.

NP&V and CCE drafted the IMA, established priority actions and programs with the IMA participants, established a Work Plan outlining various priority projects and actions, and completed several implementation products including: a grant application to establish funding for an estuary coordinator and three on-line training modules with supporting checklists and materials to assist participates with MS4 Stormwater Permit training requirements (illicit discharge detection, goose management and facility best management practices).

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Town of Shelter Island Watershed Management Plan

Environmental Planning Consulting

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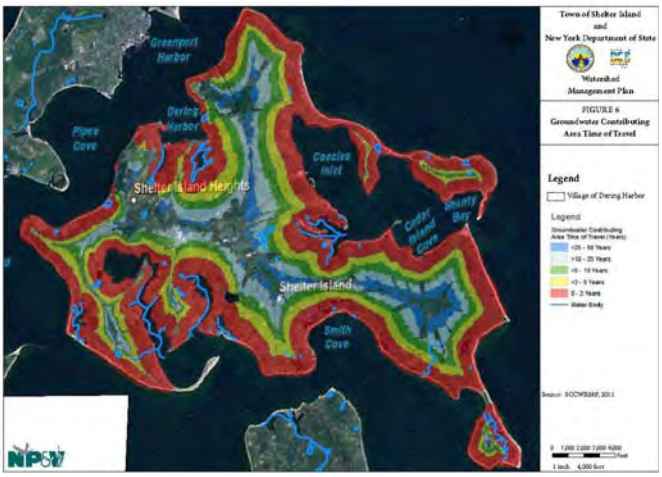

The Town of Shelter Island and Village of Dering Harbor retained NP&V to prepare a watershed management plan for the entirety of the island. The plan was funded by a grant from the NYSDOS and developed according to NYSDOS guidelines for watershed management plans. This document characterizes the watershed's natural resources, identifies known impairments, inventories existing land uses and open space, provides a comprehensive stormwater infrastructure inventory, determines critical stormwater runoff areas, identifies gaps in existing local laws, programs and practices, recommends actions to prevent further degradation, as well as identifies an implementation strategy to restore the watershed. Recommendations considered non-point source pollution from runoff and sanitary systems, as well as methods for remediation of a phosphorus impaired pond. Development of the plan included public participation and outreach to the local community. The project was completed in July 2014.

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ENVIRONMENTAL IMPACT STATEMENTS & NEPA/SEQRA ADMINISTRATION

ENVIRONMENTAL PLANNING CONSULTING:

FEASIBILITY & DUE DILIGENCE ASSISTANCE
REGIONAL & SITE PLANNING
ECONOMIC PLANNING
ENVIRONMENTAL SITE ASSESSMENT
ENVIRONMENTAL SCIENCE & ANALYSIS
WETLAND PERMITTING
STORM WATER MANAGEMENT PLANS
WATERFRONT & COASTAL ZONE PROJECTS
MAPPING
WATERSHED MANAGEMENT & WATER SUPPLY
PERMITTING & PROCESSING

EIS CONSULTING SERVICES:

LANDSCAPE AND ENVIRONMENTAL DESIGN
ECOLOGICAL & WILDLIFE STUDIES
LOCAL/REGIONAL PLANNING STUDIES
ECONOMIC & MARKET IMPACT STUDIES
HISTORIC & CULTURAL RESOURCE STUDIES
HYDROLOGIC AND SOIL SUITABILITY STUDIES
NOISE IMPACT AND AIR EMISSION STUDIES
VISUAL IMPACT ANALYSIS STUDIES & 2/3-D MODELS
GEOGRAPHIC INFORMATION SYSTEM (GIS) SERVICES

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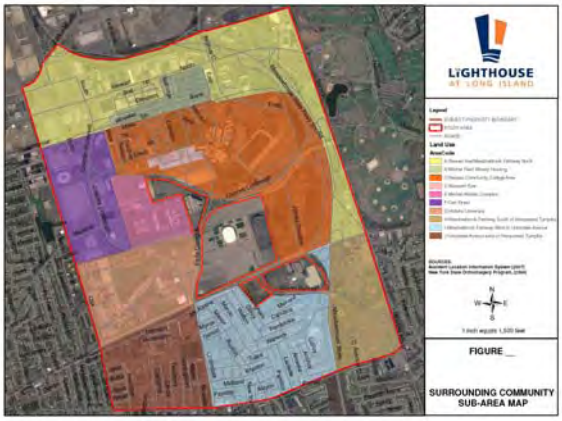

Environmental review pursuant to State Environmental Quality Review Act (SEQRA)/National Environmental Policy Act (NEPA) is required for any project of consequence proposed by private interests or government. NP&V excels at implementation of NEPA/SEQRA and performs NEPA/SEQRA review of proposed projects for government and private clients. We prepare all NEPA/SEQRA documents and ensure correct processing by agencies on behalf of our clients. NP&V has the experience and knowledge to navigate through this process to ensure that NEPA/SEQRA decisions which are made as a result of our consult are technically and administratively correct.

Sample Projects:

- **The Lighthouse @ Long Island, Nassau Coliseum EIS:** Draft and Final GEIS for a proposed 8 million square foot mixed-use development on 150-acres at the Nassau Veterans Memorial Coliseum site and adjacent commercial properties. NP&V was responsible for preparing the GEIS analysis for soils, topography, ecology, nitrogen analysis and water budget, aesthetics and visual resources, which included a regional visual analysis, air and noise sections. NP&V also delineated wetlands along the extent of the Meadowbrook Parkway to assist in evaluating potential impacts of possible roadway improvements.
- **Heckscher Museum of Art, Environmental Assessment**: NP&V completed NEPA administration and environmental consulting services for the proposed expansion and rehabilitation of the existing Heckscher Art Museum, listed on the National Register of Historic Places. Services involved the preparation of an Environmental Assessment Report for review by the National Park Service. Impact issues assessed as part of this review included coordination and Section 106 review by the State Office of Parks and Historic Preservation for historic compatibility and integrity, alienation and conversation of park lands, groundwater and drainage design and freshwater wetlands.
- **Brookhaven Walk, Town of Brookhaven, EIS**: Prepared an EIS for an innovative 850,000 SF regional shopping destination on a 150-acre site in Yaphank. NP&V worked closely and effectively in advising the applicant as to overall application strategies and provision of background information on the site, as well as input in relation to applicable land use plans and development restrictions in determining overall project uses, yields and site design. During the review period, the Town Board revised its Zoning Code, which necessitated a substantial revision of the project's site plans, particularly with respect to sanitary wastewater treatment.

Downtown Overlay Zones - DGEIS
City of New Rochelle, Westchester County

Environmental Planning Consulting

Feasibility & Due Diligence Assistance
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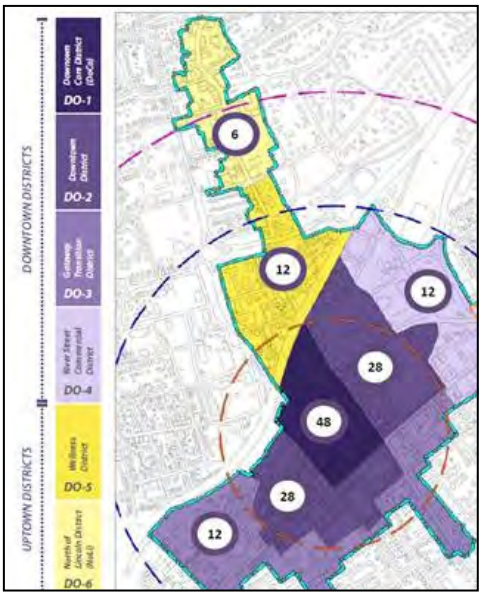

Above: Sample Illustration of a Significant Corner. Below: Projected improved streetscape & building design in a mixed-use setting.

NP&V worked with Renaissance Downtowns, the Master Developer, and the City of New Rochelle in preparing a Generic Environmental Impact Statement (GEIS) for the proposed adoption of a Downtown Overlay Zone (DOZ) for a 279-acre area of the downtown, centered around the New Rochelle train station. The DOZ is optional, whereby landowners can choose to opt into development under the proposed DOZ requirements. The intent of the Downtown Overlay District is to encourage downtown redevelopment through the creation of an active, mixed-use district with convenient, safe and pleasant access to the train station. The proposed DOZ would standardize uses to encourage the development of economically diverse high quality housing, modern retail, commercial, office, hotel space and civic uses integrated with well-designed pedestrian friendly streetscapes, and appropriately placed open and green spaces. The GEIS evaluated the specific code amendments to establish downtown overlay districts, as well as site specific impact analysis of the development scenario pursuant to the zoning amendments. The development scenario evaluated such key issues including traffic, system wide sewer and water infrastructure improvements, historic resources, community character, shadows, construction phasing, parking, air and noise. NP&V also prepared an economic impact analysis, which identified and quantified economic impacts on output, employment and labor income, as well as tax revenues.

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Downtown Overlay Zones & Map Amendments
Supplementtal GEIS
Incorporated Village of Hempstead, Nassau County

Environmental Planning Consulting

Feasibility & Due Diligence Assistance
Regional & Site Planning
Economic Planning
Environmental Site Assessment
Environmental Science & Analysis
Wetland Permitting
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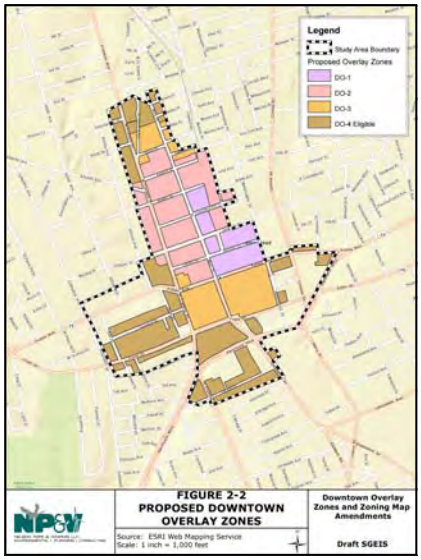
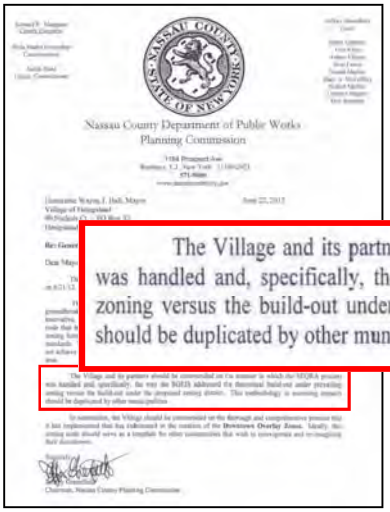
Image courtesy of Renaissance Downtowns, LLC




Nassau County Department of Public Works
Planning Commission

The Village and its partners should be commended on the manner in which the SEQRA process was handled and, specifically, the way the SGEIS addressed the theoretical build-out under prevailing zoning versus the build-out under the proposed zoning district. This methodology in assessing impacts should be duplicated by other municipalities.

NP&V worked with Renaissance Downtowns, the Village's Master Developer, and the Village of Hempstead to prepare a Supplemental Generic Environmental Impact Statement (GEIS) for the proposed adoption of Downtown Overlay Zones and Zoning Map amendments for a 279 acre area of downtown Village of Hempstead. The Supplemental GEIS evaluated the specific code amendments to establish downtown overlay districts, as well as site specific impact analysis of the development scenario pursuant to the zoning amendments. The development scenario evaluated included over five million square feet of mixed use residential, commercial and institutional uses within a 0.5 mile radius of the Hempstead train station. Key issues evaluated include traffic, system wide sewer and water infrastructure improvements, historic resources, community character, shadows, construction phasing, parking, air and noise. NP&V also prepared an economic impact analysis, which identified and quantified economic impacts on output, employment and labor income, as well as tax revenues. Nelson & Pope completed the Traffic Impact Study for the downtown area, including 40 area intersections, an assessment of trip generation accounting for the transient oriented design of the project and shared parking. The project was completed under an expedited timeframe and complimented by the Nassau County Planning Commission for the manner in which the SEQRA process was completed, and in particular, the analysis methodologies used.

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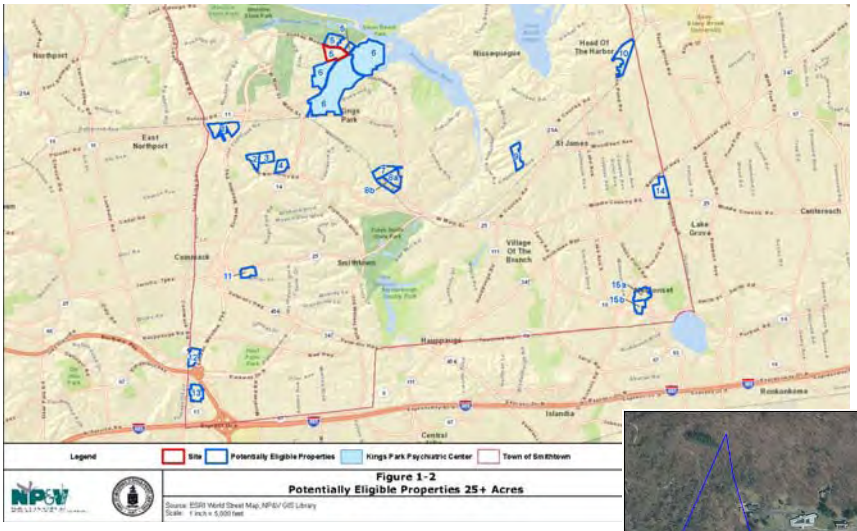
Nelson pope & Voorhis

Town of Smithtown Continuing Care Retirement Community (CCRC) Zoning Ordinance & The Uplands at St. Johnland EIS

Environmental Planning Consulting

Feasibility & Due Diligence Assistance
Regional & Site Planning
Economic Planning
Environmental Site Assessment
Environmental Science & Analysis
Wetland Permitting
Storm Water Management Plans
Waterfront & Coastal Zone Projects
Mapping
Watershed Management & Water Supply
Permitting & Processing
Sustainability & LEED
Project Planning & Support



NP&V was retained by the Town of Smithtown to evaluate zoning requirements and options for a proposed Continuing Care Retirement Community (CCRC) use in the Town Code. This analysis included examining various code requirements for similar uses throughout the country. NP&V also prepared a Market Analysis to evaluate the demand for CCRC uses in the Town and vicinity.

NP&V also prepared an Environmental Impact Statement (EIS) for the proposed CCRC Code amendments, which included a Town-wide analysis of all potentially qualifying parcels meeting the proposed CCRC zoning criteria and analysis of a site-specific development project proposed under the proposed CCRC district (The Uplands at St. Johnland). The Uplands project included 199-unit Continuing Care Retirement Community (CCRC) of approximately 430,000 gross square feet consisting of 22 townhouse units, 153 independent living units and 24 assisted living units. The site specific analysis involved a 50-acre site with a number of environmental constraints, including wetlands, slopes, confining soil/perched water conditions, and sanitary flow limitations. Both natural and human resources were assessed for the project, including the verification of a wetland delineation for a NYS regulated pond on the parcel to be developed. Compliance with both the Wild, Scenic and Recreational River corridor regulations and the Local Waterfront Revitalization Program policies were analyzed for the proposed development.

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Brookhaven Town Center EIS

Environmental Planning Consulting:

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Economic Planning
Environmental Site Assessment
Environmental Science & Analysis
Wetland Permitting
Storm Water Management Plans
Waterfront & Coastal Zone Projects
Mapping
Watershed Management & Water Supply
Permitting & Processing

EIS Consulting Services:

Landscape and Environmental Design
Ecological & Wildlife Studies
Local/Regional Planning Studies
Economic & Market Impact Studies
Historic & Cultural Resource Studies
Hydrologic and Soil Suitability Studies
Noise Impact and Air Emission Studies
Visual Impact Analysis Studies & 2/3-D Models
Geographic Information System (GIS) Services

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NP&V prepared the Draft and Final EIS for an 850,000 square foot regional retail center on a 150-acre site. Project also included supplemental SEQRA documents for project design changes to address all natural and human resource impacts including land use, traffic, air quality, noise, wetlands, pine barrens habitats, community services and community character. Additionally, NP&V obtained Development of Regional Significance approval from the Central Pine Barrens Joint Policy and Planning Commission, as well as all necessary freshwater wetland permits from the NYSDEC and the Town of Brookhaven. A central factor in connection with the project was the availability of sanitary wastewater treatment, and the effect on yield associated with the specific type of treatment system required by County regulations.

Nelson Pope & Voorhis

Phase I Environmental Site Assessments

Environmental Planning Consulting

Feasibility & Due Diligence Assistance
Regional & Site Planning
Economic Planning
Environmental Site Assessment
Environmental Science & Analysis
Wetland Permitting
Storm Water Management Plans
Waterfront & Coastal Zone Projects
Mapping
Watershed Management & Water Supply
Permitting & Processing

Nelson, Pope & Voorhis completes over 100 Phase I Environmental Site Assessments (ESA) every year on average in locations from Montauk to Manhattan and throughout the Tri-State Area. Phase I ESA's performed by NP&V involve everything from small to large commercial and industrial buildings to multiple blocks of mixed uses as a predecessor to major revitalization projects. A recent major project involved multiple Phase I ESA's for a Village of Hempstead Urban Renewal Project. Specifically, all of the properties and buildings located within the Urban Renewal Project boundary were inspected for the presence of potential recognized environmental conditions using specially designed comprehensive identification, inventory, database and graphic presentation system devised by NP&V for the project. Customized field inspection forms were completed for all of the properties and buildings to outline the use and contents of the properties and buildings, and to provide recommendations regarding potential recognized environmental conditions towards further investigation and cleanup needed to facilitate the renewal project.

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Nelson Pope & Voorhis

Phase II Environmental Site Assessments

Environmental Planning Consulting

Feasibility & Due Diligence Assistance
Regional & Site Planning
Economic Planning
Environmental Site Assessment
Environmental Science & Analysis
Wetland Permitting
Storm Water Management Plans
Waterfront & Coastal Zone Projects
Mapping
Watershed Management & Water Supply
Permitting & Processing

Nelson, Pope & Voorhis completes over 50 Phase II Environmental Site Assessments (ESA) every year in locations from Montauk to Manhattan and throughout the Tri-State Area. Phase II ESA's performed by NP&V involve a variety of sampling techniques and mediums including: hand auger and Power Probe soil and groundwater sampling, Ground Penetrating Radar (GPR), Photo Ionization Detection of field samples, methane monitoring, groundwater monitoring, determination of groundwater flow direction and all phases of site investigation and cleanup. Based on the results of Phase II ESA investigations, numerous site remediations have been completed under our supervision and in coordination with County, State and Federal environmental and health agencies. Over the years, NP&V has established an excellent working relationship with personnel of these agencies. This relationship allows us to obtain direct input from the regulatory agencies to promptly and properly coordinate and implement complex sampling and remedial tasks. We look forward to designing a program that fits your needs.

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Nelson Pope & Voorhis

Remediation, VCPs and Site Closure

Environmental Planning Consulting

Feasibility & Due Diligence Assistance
Regional & Site Planning
Economic Planning
Environmental Site Assessment
Environmental Science & Analysis
Wetland Permitting
Storm Water Management Plans
Waterfront & Coastal Zone Projects
Mapping
Watershed Management & Water Supply
Permitting & Processing

Nelson, Pope & Voorhis implemented, coordinated and supervised the completion of a Voluntary Clean Up Plan (VCP) for the Coral Graphics site located in Hicksville on New South Road. This project involved the compilation of a sampling and analysis work plan reviewed and approved by New York State Department of Environmental Conservation (NYSDEC) and designed to identify the presence of contamination at the site. Based on the sample results, a remedial action plan was compiled for review and approval by NYSDEC. Once the remedial action plan was completed and accepted, NP&V personnel coordinated and supervised the remedial activities outlined for the project. At the conclusion of the remedial activities, endpoint samples were collected by NP&V personnel and submitted to a certified laboratory for analysis. The sample results were compiled and submitted to NYSDEC for review and closure of the NYSDEC file.

NP&V specializes in Phase I and Phase II Environmental Site Assessments, RI/FS projects, VCP projects and site cleanup on behalf of municipal and private clients.

Nelson Pope & Voorhis

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RESUMES

Charles J. Voorhis, AICP, CEP

PERSONAL PROFESSIONAL QUALIFICATIONS

Licensing and Certification:

- Certified Environmental Professional (CEP)
- American Institute of Certified Planners (AICP)
- Certified Environmental Inspector, Environmental Assessment Association
- US Coast Guard Master Steam and Auxiliary Sail Vessels

Experience:

- Managing Partner of Firm, Nelson, Pope & Voorhis, LLC; Melville, New York (1/97-Present)
- Principal of Firm, Charles Voorhis & Associates, Inc.; Miller Place, New York (8/88-1/97)
- Director, Division of Environmental Protection, Department of Planning, Environment and Development; Town of Brookhaven, New York (3/86-8/88)
- Environmental Analyst, Division of Environmental Protection, Department of Planning, Environment and Development; Town of Brookhaven, New York (8/82-3/86)
- Private and Public Consultant, Planning and Environmental Issues (8/82-3/87)
- Public Health Sanitarian, Suffolk County Department of Health Services; Hauppauge, New York (1/80-8/82)
- Environmentalist I, Suffolk County Department of Environmental Control, Central Islip, New York (2/78- 8/79)

Education:

- SUNY at Stony Brook; Master of Science in Environmental Engineering, concentration in Water Resource Management, 1984
- Princeton Associates; Groundwater Pollution and Hydrology Short Course, Princeton, New Jersey, 1983
- New York State Health Department, Environmental Health Training Course, Hauppauge, New York, 1982
- Southampton College of Long Island University; Bachelor of Science in Environmental Geology, 1977

Significant Professional Achievements:

- Great Cove Watershed Management Plan, 2011
- Town of Southold Comprehensive Plan Update, Economic Chapter, 2010
- Beaver Dam Creek Watershed Management Plan, 2009
- Lake Agawam Comprehensive Management Plan, 2009
- Southold TDR Planning Report and GEIS, 2008
- Suffolk County North Shore Embayments Watershed Management Plan, 2007
- Mt. Sinai Harbor Management Plan, 2006
- The Residences at North Hills, DEIS and FEIS, 2005-06
- Shelter Island Water Supply Study, 2005
- Town of Southold Comprehensive Implementation Strategy, 2003
- Lower Port Jefferson Harbor Action Plan, 2002
- Setauket Fire District Needs Analysis, 2001
- Southampton Agricultural Opportunities Subdivision, DEIS, FEIS and Findings, 2001
- Old Orchard Woods, DEIS and FEIS, 2000
- Town of Smithtown Armory Park, DEIS, 2000
- Town of Southold Water Supply Management & Water Protection Strategy, 2000
- CVS @ Greenlawn, DEIS and FEIS, 1998
- Knightsbridge Gardens, DEIS and FEIS, 1997
- Camelot Village @ Huntington, DEIS, 1997
- Airport International Plaza, DEIS and FEIS, 1996
- Price Club @ New Rochelle, DEIS and FEIS, 1995
- Commack Campus Park @ Commack DEIS and FEIS, 1994
- Water Mill Shops @ Water Mill DEIS, 1993
- PJ Venture Wholesale Club @ Commack DEIS and FEIS, 1993
- Dowling College NAT Center DEIS and FEIS, 1992
- Final EIS Angel Shores @ Southold, 1991
- Town of Brookhaven Boat Mooring Plan, 1991
- Draft EIS Round Hill @ Old Westbury, 1990
- Draft EIS St. Elsewhere @ Nesconset, 1989
- EQBA, Acquisition Study for Brookhaven Town, 1987
- Award for Environmentally Sensitive Land Design, Pine Barrens Review Comm., 1988
- Town of Brookhaven Land Use Plan, 1987
- Discussion of Hydrogeologic Zone Boundaries in the Vicinity of S. Yaphank, LI, NY, 1986
- Comprehensive Review of Industrial Zoned Land in the Sensitive Hydrogeologic Zone, Brookhaven, 1983

Professional & Other Organizations (past and present):

- American Planning Association, Washington, D.C.
- National Association of Environmental Professionals, Alexandria, VA
- Environmental Assessment Association, Scottsdale, Arizona
- American Water Resources Association, Syracuse, New York
- New York Water Pollution Control Association, Riverdale, NY
- Water Pollution Control Federation, Washington, D.C.
- Long Island Seaport & EcoCenter, Inc., Director, Port Jefferson, NY
- Boy Scouts of America, Trained Scoutmaster, Nathanial Woodhull District, NY
- Historical Society of Port Jefferson, Trustee, Port Jefferson, NY
- Environmental Conservation Board, Village of Port Jefferson, NY
- Port Jefferson Village, Waterfront Advisory Committee, Port Jefferson, NY
- Town of Brookhaven Mount Sinai Harbor Advisory Committee, Medford, NY
- Brookhaven Conservation Advisory Council, Medford, NY

Steven J. McGinn, CEI

PERSONAL PROFESSIONAL QUALIFICATIONS

Licensing and Certification:

- Licensed Asbestos Inspector
- OSHA 40 Hour HAZWOPER
- Certified Environmental Inspector, Environmental Assessment Association (CEI)
- Lead Based Paint Risk Assessor
- Radon Measurement Specialist

Experience:

- Partner/Division Manager, Nelson, Pope & Voorhis, LLC (July 2005 to Present)
- Senior Environmental Analyst, Nelson, Pope & Voorhis, LLC (January 1997 to July 2005)
- Environmental Analyst, Nelson & Pope, LLP (July 1989 to January 1997)
- Project Manager, Middleton Kontokosta & Associates (May 1988 to July 1989)
- Planning Aide, Town of Huntington Planning Department (January 1987 to May 1988)

Education:

- 8-Hour HAZWOPER Refresher Course
- 40-Hour Course Hazardous Materials Training
- Performing Phase I Environmental Inspections, Environmental Assessment Association, Sept. 1997
- Environmental Regulations Course, Executive Enterprises, June 1996
- Environmental Impact Statements, Cook College/Rutgers University, December 1994
- State University of New York at Cortland - Bachelor of Science in Geography, January 1986

Significant Professional Achievements:

- Village of Hempstead Urban Renewal Project - Phase I ESA
- Coram Plaza, Coram - Phase I, II & III ESA and Asbestos Survey
- 744 Clinton Street, Brooklyn - Phase I & II ESA
- Middle Island Country Club, Middle Island - Phase I & II ESA
- Tyrolean Auto Sport, Northport - Phase II & III ESA
- Long Island Children's Museum, Westbury - Phase I & II ESA
- 940 Bryant Avenue, Bronx - Phase I ESA
- 1345 Seneca Avenue, Bronx - Phase I ESA
- Red Roof Farms, Rye Brook - Phase I & II ESA
- Thomas Dodge Subaru, Port Jefferson - Phase I & II ESA
- 221 Skip Lane, Bay Shore - Phase I & II ESA
- 950 West Main Street, Riverhead - Phase I ESA
- Long Island Galleria/Price Club Plaza, Westbury - DEIS & FEIS
- Currans Road Development, Middle Island - DEIS & FEIS
- Timber Ridge at the Plains, Greenlawn - DEIS & FEIS
- Greene's Creek Marina, Sayville - DEIS
- Town of Brookhaven Marine Reconstruction Projects, Patchogue, Blue Point, Port Jefferson, Mount Sinai, - Tidal Wetland Permits
- Village of Lake Success, Lake Success - Land Use and Zoning Analyses

Professional Responsibilities:

- Division Manager for Phase I and Phase II Environmental Site Assessments, Site Remediation Coordination and Supervision, Lead-Based Paint sampling and Asbestos Surveys for lending institutions
- Author of numerous Phase I & II ESA reports, remediation & brownfield projects work plans, and closure reports in both draft and final formats for major large scale, high-profile pro jects.
- Other responsibilities include the preparation of various environmental, planning and zoning studies and the preparation of various state and federal applications such as: land use and zoning studies, noise and air quality assessments, feasibility studies, economic analyses, freshwater and tidal wetland permits, etc.
- Interaction with various Town, County, State and Federal officials, attorneys, developers, engineers, Town Boards, Planning Boards, and Zoning Boards of Appeals.

Professional & Other Organizations (past and present):

- American Planning Association, Washington, D.C.
- National Association of Environmental Professionals, Alexandria, VA
- Environmental Assessment Association, Scottsdale, Arizona
- National Groundwater Association, Assoc. of Groundwater Scientists and Engineers

Carrie O'Farrell, AICP

PERSONAL PROFESSIONAL QUALIFICATIONS

Experience:

- Partner/Division Manager of the Environmental Resource & Wetland Assessment Division, Nelson, Pope & Voorhis, LLC Melville, New York (3/2005 - present).

- Environmental Planner; Nelson, Pope & Voorhis, LLC, Melville, NY (10/2002 to 2/2005). Preparation of environmental assessments, environmental impact statements and various other land use and feasibility studies. Development of land use plans for town zoning and planning purposes, and coordinate reviews with various town and state officials. Preparation of freshwater & tidal wetlands permits & permit plans, NYSDEC Stormwater Pollution Prevention Plans and Stormwater General Permit filings.

- Consultant and Environmental Policy Analyst, Booz Allen Hamilton, Inc., Washington, D.C. (1999 to 2002). Provide program management, planning, on-site support, and data analysis for various federal agency environmental programs including U.S. Department of Energy, Federal Aviation Administration (FAA), and U.S. Department of Defense. Prepared policy recommendations, program information briefings, Congressional testimony, and various program support activities. Reviewed and prepared sections of environmental impact analyses, policy language, responses to public comments, press releases, and fact sheets; and coordinated interagency meetings and comment resolution between various federal offices.

Education:

- Bachelor of Science: University of Rochester, Environmental Science, May 1999

Significant Professional Achievements:

- Environmental Impact Statements (EIS): Downtown Hempstead Rezoning, Village of Hempstead; The Uplands at St. Johnland, Kings Park; Lighthouse @ Long Island, Kensington Estates, Woodbury; Roslyn Landing @ Roslyn; Glen Harbor Partners Town of N. Hempstead; The Residences @ North Hills, Village of North Hills; Lands End, Village of Sands Point; Korean Church of Long Island, Village of Lake Success; Sandy Hills, Town of Brookhaven;
- Draft Generic EIS and Mixed Use Planned Development District legislation: Gabreski Airport PDD; North Sea Mixed Use Development District, Southampton, NY.
- Planned Development District Master Plan & Planned Development District (PDD) Legislation: Gabreski Airport Master Plan, Town of Southampton; North Sea PDD, Town of Southampton; Poxabogue Golf Course PDD, Town of Southampton
- Expanded Part I & Part III Environmental Assessments: Williams Estate, Cold Spring Harbor; Parrish Art Museum, Town of Southampton; Cenacle Manor, Ronkonkoma; The Seasons at East Meadow; Laurel Hollow Subdivision; Greenport Marina, Greenport, NY; Engel Burman @ Plainview; Shaw Estates, Manorville
- NYC CEQR Environmental Assessments: Briarwood Plaza Bell Boulevard Rezoning; Hatzolah of Boro Park
- DEC SPDES Phase II Permits & Municipal Compliance: Village of Poquott, Village of Port Jefferson, & Village of Bellport Stormwater Management Plans; Completion of DEC annual reports; completion of 100+ Stormwater Pollution Prevention Plans for Stormwater Discharges from Construction Activity (GP-0-10-001) for construction sites throughout Nassau & Suffolk Counties.
- Municipal Planning Studies: Great Cove Watershed Management Plan, Town of Islip; Mount Sinai Harbor Management Plan, Town of Brookhaven; NYSDOS Beaver Dam Creek Watershed Management Plan; NYSDOS Barriers to Fish Passage in six South Shore Estuary Reserve Tributaries; Town of North Hempstead, North Sheets Creek Beach Shoreline & Park Improvements; Town of Shelter Island Water Supply Study;
- Wetlands Permits & Feasibility Studies: Fire Island Pines Property Owner's Association, Brookhaven; Bedford Ponds, Bedford, NY; Kismet Walks, Town of Islip; Mooney Pond, Coram, Town of Brookhaven; Port Washington Yacht Club, Port Washington.
- Site plan/subdivision review: Village of Lake Success, Town of Southampton, Town of Southold and Villages of Poquott and Southampton.
- US Department of Energy (DOE) Yucca Mountain Project Draft, Supplemental, and Final EIS. Conducted DOE headquarters policy review, prepared draft language, and coordinated inter- agency comment/review of documents for nationwide NEPA project.
- U.S. Department of Energy Yucca Mountain Site Recommendation. Assisted in the development and review of U.S. Secretary of Energy's Yucca Mountain Site Recommendation Decision and Congressional approval.
- NEPA Environmental Assessment: Heckscher Museum, Huntington, NY.

Eric C. Arnesen, LPG

PERSONAL PROFESSIONAL QUALIFICATIONS

Experience:

- Project Manager/Hydrogeologist, Nelson, Pope & Voorhis, LLC, Melville, NY (2014-Present)
- Hydrogeologist, Nelson, Pope & Voorhis, LLC, Melville, NY (1999-2014). Responsible for providing technical and professional expertise for Phase I, II, III, RI/FS studies, ESAs, EISs and EAFs regarding groundwater, surface water, soil and solid waste issues, and performs Stormwater Pollution Prevention Plan inspections and site monitoring.
- Hydrogeologist, Fanning, Phillips and Molnar, Ronkonkoma, NY (1998-1999). Field coordination and management of delineation and long-term monitoring programs for Air Force Center for Environmental Excellence (AFCEE) at United States Air Force Bases.
- Hydrogeologist, ERM-Northeast, Woodbury, NY (1993-1998). Field coordination and management of Phase I and II Investigation studies. Field Manager of RI/FSs, removal actions and plume delineation studies under jurisdiction of USEPA, USDOE and NYSDEC.
- Geologist/Hydrogeologist Roux Associates, Huntington, NY (1988-1993). Involved in over 30 Phase I and II investigations in all aspects of participation.

Education:

- State University of New York at Stony Brook, Masters of Science, Hydrogeology (2000).
- State University of New York at Cortland Bachelors of Science, Geology (1988).

Significant Professional Achievements:

- Prepared several Draft EISs for major development projects on Long Island which included the development of a 600,000 sq ft industrial facility on a 78 acre parcel within the Central Pine Barrens Compatible Growth Area in Yaphank, New York; a PRC complex on a 74 acre parcel within the Central Pine Barrens Compatible Growth Area in Eastport, New York and for a proposed home improvement center in Rocky Point, New York. Considered variety of environmental resources including water, geology, soils ecology community, aesthetics, transportation, cultural, zoning, land use and planning. Evaluated impacts developments may have on these resources and proposed mitigation measures to reduce impacts. Also evaluated alternatives to proposed project to determine most appropriate and feasible development approach. Presented finding during public information meetings sponsored by the Town planning board.
- Prepared several Draft EISs for the State Education Department (SED) related to the expansion and/or construction of educational facilities. Specifically, conducted an environmental review and authored the Draft EIS related to the proposed construction of a new Middle School for the Hewlett-Woodmere School District; High School expansion for the Center Moriches School District; construction for a proposed new public libraries in South Huntington, West Hempstead and Merrick and expansion of the Baldwin Public Library. Reviewed and analyzed potential project impacts on environmental resources, demography, public services, traffic patterns, cultural resources, aesthetics and surrounding land use. Outlined measures to be undertaken to mitigate any negative impact which may have resulted from each project.
- Prepared Part III EAF's for several development proposals including PRCs, multiple retail outlets, restaurants and apartment complexes. Addressed issues outlined in scoping documentation which include groundwater, topography, ecology, transportation cultural resources, aesthetic resources, community services, community character, sanitary disposal, etc. Analyzed impact development has on these resources and proposed mitigation measures to alleviate negative effects.
- Prepared multiple Phase I studies for a variety of industrial, commercial and residential facilities for the purpose of facilitating property transfer. Also prepared Phase I ESA's for County & Town agencies related to Land Preservation Acquisition.
- Conducted compliance inspections for several construction sites as per the requirements outlined under the NYSDEC SWPPP (GP-0-08-001).

Significant Professional Achievements:

- Conducted groundwater mounding hydrogeological studies as well as groundwater flow assessment studies to assess the potential impacts related to discharges from proposed new or expanded Sewage Treatment Plants (STP) within multi-family residential communities. The studies included the collection of geologic and hydrogeologic data which was incorporated into a numerical groundwater mounding model.
- Prepared Compatible Growth Area Application package for a Development of Regional Significance related to the construction of a light industrial facility in the Central Pine Barrens Region on Long Island, New York. Provided information requested by Central Pine Barrens Commission to ensure compliance with the standards and guidelines outlined in the Central Pine Barrens Comprehensive Land Use Plan.
- Conducted RI/FS for an electroplating facility in Farmingdale, New York. Prepared RI/FS report in accordance with NYSDEC requirements for the evaluation of remedial alternatives related to impacts to soils and groundwater. Evaluated technical data for the proposal of several remedial alternatives which included groundwater pump and treat, capping, excavation and encapsulation.
- Supervised and conducted field activities related to several RI/FS and Phase II studies for a variety of facilities which include government installations, dry cleaners, and industrial facilities. Oversaw all aspects of field investigation including well and boring installations, sampling activities, geophysical studies, air quality studies and hydrogeological studies (pump tests, step tests, stratigraphic mapping, etc.).

Professional & Other Organizations (past and present):

- Licensed Professional Geologist, Tennessee Department of Commerce, License # 4471
- OSHA 40 Hour HAZWOPER and 8 hour HAZWOPER refresher
- Geophysical Survey Systems, Inc., Theory and Practice of Applying Subsurface Interface Radar in Engineering and Geophysical Investigations Training Course, March 2004
- National Highway Institute, FHWA-NHI-132079 Subsurface Investigation Qualification, October, 2009.
- SUNY, Stormwater Management Program, Erosion & Sediment Control Site Design Training, May, 2008.

PHILLIP A. MALICKI, CEP, AICP, LEED® AP

PERSONAL PROFESSIONAL QUALIFICATIONS

Experience:

- Senior Environmental Planner, Nelson, Pope & Voorhis, LLC, (2/05 - present)
- Senior Planner, AKRF, Inc., (6/04 - 2/05)
- Senior Environmental Scientist, Nelson, Pope & Voorhis, LLC, (4/97 - 6/04)
- Senior Environmental Scientist, Ethan C. Eldon Associates, Uniondale, New York (6/95 - 4/97)
- Senior Environmental Analyst, Nelson & Pope, Melville, New York (2/90 - 3/95)
- Environmental Analyst, Nelson & Pope, Melville, New York (7/85 - 2/90)

Education:

- Master of Science, Earth Sciences, Adelphi University, Garden City, New York, 1984
- Bachelor of Science, Astrophysics, Indiana University, Bloomington, Indiana, 1979
- Visualizing Density, Lincoln Institute of Land Policy, Cambridge, Massachusetts, 2003
- Hydrology of Wetlands, Cook College/Rutgers University, 1998
- Methodology for Delineating Wetlands, Cook College/Rutgers University, 1994
- Environmental Impact Statements, Cook College/Rutgers University, 1994
- Introduction to Freshwater Wetland Delineation, Cook College/Rutgers University, 1993
- New York State Professional Engineer Review Course, Hofstra University, Uniondale, New York, 1988-89
- New York State Engineer in Training Review Course, Hofstra University, Uniondale, New York, 1987-88

Significant Professional Achievements:

- Tall Grass at Shoreham, DEIS & FEIS, Shoreham
- The Hamptons Club at Eastport, DSEIS, Eastport
- The Hamptons Club at Eastport, CPBJPPC Hardship Application
- Hess/Manorville, CPBJPPC Hardship Application
- Kuchtuk Property, PDD, Draft EIS, North Sea
- Blue Point Fire Department EAF Part III, Blue Point
- Headriver DEIS and FEIS, Riverhead
- The Hamlet at Willow Creek DSGEIS and FSGEIS, Mt. Sinai
- Narragansett Villas EAF Part III, Amityville
- Huntington Harbor Estates EAF Part III, Huntington
- Red Creek PDD GEIS, Hampton Bays
- Nesconset Armory Park DEIS, Smithtown
- Brookhaven Town Center/ Brookhaven Walk DEIS & FEIS, Yaphank
- Computer Associates Phase III Supplemental Generic EIS, Islandia
- Old Orchard Woods DEIS, Eatons Neck
- The Meadows at Mitchel Field DEIS, Uniondale
- North Shore Properties GEIS, Yaphank
- Brooklyn Hospital Center DEIS, Brooklyn
- Brooklyn Junction Shopping Center DEIS, Brooklyn
- Kiruv Estates DEIS, Huntington
- Adelphi University Campus Improvements Program EAF Part III, Garden City
- Commack Campus Park DSEIS, Commack
- Bethel Pentecostal Church DEIS, Old Westbury
- The Lighthouse DEIS (part), Uniondale
- RB Industrial Subdivision EAF Part III, Yaphank
- Mount Sinai PDD, DEIS, Mount Sinai
- Tall Grass Village Center PDD Application, Shoreham
- Fairfield at Rocky Point PDD Application, Rocky Point
- Five Towns College DEIS and FEIS, Dix Hills
- Fairfield at Rocky Point PDD DEIS, Rocky Point
- Crown Recycling Facility DEIS and FEIS, Riverhead
- LIRR Huntington/Port Jefferson Branch Train Yard DEIS (part)
- Pilgrim Inter-Modal Facility DEIS (part), Brentwood
- NYS Route 110 Road Widening Program DEIS (part), Melville
- Southold Solid Waste Management District Recycling Facility EAF Part III
- Southold Comprehensive Implementation Strategy Draft GEIS
- Southampton Agricultural Opportunities Subdivision Draft and Final GEIS
- Southampton Critical Wildlands and Groundwater Protection Plan Draft GEIS (part)
- Hauppauge Green Demographic & Tax Impact Analysis, Hauppauge

Professional Organizations & Certifications:

- Certified Environmental Professional (CEP)
- American Institute of Certified Planners (AICP)
- LEED Accredited Professional
- Member, American Planning Association
- Member, National Association of Environmental Professionals

ATTACHMENT B

LINAP ASSUMPTIONS – JANUARY 2017

Attachment B LINAP Assumptions

N Source	Application Load (lb-N/1,000sf/yr)	% of Parcel Fertilized	Leaching Rate (%) / Soil	Vadose Zone Loss	Aquifer Loss	Notes	Reasoning
Fertilizer	2.04	20-60%	30%	0%	0-15%	Residential; 1 lb-N/1,000 sf per application; 49% > 1 application per year (3-4); 31% 1 application per year; 4.5% 1 application every 3 years; 15.5% No fertilizer; Represent averages. Vaudrey gives average, low and high values	Modified from Vaudrey. 40% leaching rate is double the leaching rate used by MEP and between that and the NLM values. Leaching rate doubled due to age of turf and irrigation practices in Suffolk County. No strong evidence for vadose zone losses. Aquifer denitrification potential will be tested in sensitivity simulationsm as will a range of leaching rates (20 to 61%). Use Cornell % Turf for residential. Golf course application consistent with Cornell/Porter.
	3.89	Greens and Fairways	20%	0%	0-15%	golf courses	
	0.92	75%	30%	0%	0-15%	Parks and athletic fields; Assumes 50% of parks use fertilizer; Assumes 75% of the land is fertilized	
	0.46	90%	40%	0%	0-15%	Pasture/hay	Generally a permanent, non-rotating form of ag
	1.61	90%	40%	0%	0-15%	Orchards	Generally a permanent, non-rotating form of ag
	0.34	90%	40%	0%	0-15%	Vineyards (vinifera grapes)	Generally a permanent, non-rotating form of ag
	5.74	90%	40%	0%	0-15%	Sod	Generally a permanent, non-rotating form of ag
	2.53	90%	40%	0%	0-15%	Other Crops	Rotating crops. This represents the weighted average of the other crop types.

N Source	Application Load (lb-N/1,000sf/yr)	Leaching Rate (%) / Soil	Vadose Zone Loss	Aquifer Loss	Notes	Reasoning
Atmospheric	0.041	25%	0%	0-15%	Natural vegetation	Application load reduced to correspond with Southold Cedar Beach data and CASTNET data from surrounding stations. Leaching rates from TNC (2016).
		30%	0%		Turf	
		40%	0%		Agriculture	
		25%	0%		Wetlands	

N Source	Load (lbs-N/person/yr)	Attenuation Factors			Reasoning
		Septic Tank (Suffolk)	Leaching Ring & Plume	Aquifer	
On-Site Wastewater Systems (Residential)	**10**	**6%**	**10%**	**0-15%**	**This loading estimate is consistent with what was used on Long Island and the NLM but slightly reduced from the 10.58 (NLM) and the 11 lbs/person/yr mentioned by the Chesapeake report to account for additional N load from non-residential sources. The 6% lost in the septic tank from NLM. 10% from leaching rings and plume. 15% from aquifer as per Young, Kroeger and Hanson (2013), but this is likely the high end for Long Island. This will be evaluated with sensitivity simulations. For residential developments served by STPs, use County DMR data (No individual load appied to parcels served by STPs). People per household supplied by the Towns / Census**

Population (people per household)
See Population_EastEnd and Population_WestEnd
Eastern towns will be weighted for seasonal population (assuming July and August)

	Approach
On-Site Wastewater Systems (Non-Residential)	Use County DMR data. For sites without DMR data, use Suffolk County Commercial Sewer Standards (flow per unit area), building footprints and an assumed effluent of 60 mg-N/L.

Land Use Type	Flow (gpd/sf)
Commercial	0.07
Industrial	0.04
Institutional	0.06
Downtown Commercial	0.07

PLUS an assumed 2 dwelling units

For Parks
Number of cars/trucks per park per year (from SCDHS) x 4 people per vehicle (SCHDS) x 5 gallons per person (SCDHS) x 60 mg-N/L

Animal N Load (lbs-N/animal/yr)	Cats	Dogs	% Lost to Volatilization	Geese & Ducks	Deer
	3.22	4.29	75%	*	*

Cat & Dog Population (number per household)		
	Indoor	Outdoor
Cats	1.16	**0.74**
Dogs	0	**1.4**

Appendix E-2
SONIR Model Results, Existing Conditions

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

SHEET 1

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

Crest Town Center; Existing Conditions
Bellport, NY 9/3/2018

DATA INPUT FIELD

A	Site Recharge Parameters	Value	Units
1	Area of Site	52.95	acres
2	Precipitation Rate	49.90	inches
3	Acreage of Fertilized Landscaping	0.00	acres
4	Fraction of Land in above	0.000	fraction
5	Evapotranspiration from above	25.50	inches
6	Runoff from above	0.50	inches
7	Acreage of Unfertilized Landscaping	0.00	acres
8	Fraction of above	0.000	fraction
9	Evapotranspiration from above	25.50	inches
10	Runoff from above	0.50	inches
11	Acreage of Unvegetated/Dirt Roads	0.00	acres
12	Fraction of above	0.000	fraction
13	Evapotranspiration from above	0.00	inches
14	Runoff from above	0.00	inches
15	Acreage of Water/Ponds	0.00	acres
16	Fraction of Site in above	0.000	fraction
17	Evaporation from above	30.00	inches
18	Makeup Water (if applicable)	0.00	inches
19	Acreage of Natural	52.95	acres
20	Fraction of above	1.000	fraction
21	Evapotranspiration from above	25.50	inches
22	Runoff from above	0.50	inches
23	Acreage of Impervious/Paved/Bldgs	0.00	acres
24	Fraction of Land in above	0.000	fraction
25	Evapotrans. from above	4.99	inches
26	Runoff from Impervious	0.00	inches
23	Acreage of Other	0.00	acres
24	Fraction of Land in above	0.000	fraction
25	Evapotrans. from above	25.50	inches
26	Runoff from above	0.00	inches
27	Acreage of Land Irrigated	0.00	acres
28	Fraction of Land Irrigated	0.000	fraction
29	Irrigation Rate	24.00	inches
30	Number of Dwellings	0	units
31	Water Use per Dwelling	0	gal/day
32	Wastewater Design Flow	0	gal/day
33	Adusted Wastewater Design Flow	0	gal/day

B	Nitrogen Budget Parameters	Value	Units
1	Persons per Dwelling	1.00	persons
2	Nitrogen per Person per Year	10.0	lbs
3	a. Sanitary Nitrogen Leaching Rate	84%	percent
3	b. Treated Sanitary Nitrogen Leaching Rate	100%	percent
4	Fertilized Landscaping	0.00	acres
5	Fertilizer Application Rate (for above)	1.50	lbs/1000 sq ft
6	Fertilizer Nitrogen Leaching Rate (for above)	30%	percent
7	Fertilized Land (other, if applicable)	0.00	acres
8	Fertilizer Application Rate (for above)	0.00	lbs/1000 sq ft
9	Fertilizer Nitrogen Leaching Rate (for above)	0%	percent
10	Outdoor Cat Population	0.00	pets/dwelling
11	Cat Waste Nitrogen Load	3.22	lbs/pet/year
12	Outdoor Dog Population	0.00	pets/dwelling
13	Dog Waste Nitrogen Load	4.29	lbs/pet/year
14	Pet Waste Nitrogen Leaching Rate	25%	percent
15	Area of Land Irrigated	0.00	acres
16	Irrigation Rate	24.00	inches
17	Irrigation Nitrogen Leaching Rate	10%	percent
18	Atmospheric Nitrogen Application/Load	0.041	lbs/1000 sq ft
19	Atmos. N Leaching Rate (Natural/Wetlands)	25%	percent
20	Atmos. N Leaching Rate (Turf/Landscaped)	20%	percent
21	Atmos. N. Leaching Rate (Ag; Imperv; Other)	40%	percent
22	Nitrogen in Water Supply	2.00	mg/l
23	Nitrogen in Treated Sanitary Flow	10.00	mg/l

C	Comments
1)	Please refer to user manual for data input instructions; updated per LINAP

Developed Area	0.00	0%
Natural/Unvegetated/Revegetated Area	114.30	100%
Total Acreage Check	114.30	100%

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

Crest Town Center; Existing Conditions
Bellport, NY 9/3/2018

SITE RECHARGE COMPUTATIONS

A	*Fertilized Landscaping*	*Value*	*Units*
1	A = Fraction of Land in Cover Type	0.000	fraction
2	P = Precipitation Rate	49.90	inches
3	E = Evapotranspiration Rate	25.50	inches
4	Q = Runoff Rate	0.50	inches
5	R(a) = P - (E + Q)	23.90	inches
6	R(A) = R(a) x A	0.00	inches

B	*Unfertilized Landscaping*	*Value*	*Units*
1	A = Fraction of Land in Cover Type	0.000	fraction
2	P = Precipitation Rate	49.90	inches
3	E = Evapotranspiration Rate	25.50	inches
4	Q = Runoff Rate	0.50	inches
5	R(b) = P - (E + Q)	23.90	inches
6	R(B) = R(b) x A	0.00	inches

C	*Unvegetated/Dirt Roads*	*Value*	*Units*
1	A = Fraction of Land in Cover Type	0.000	fraction
2	P = Precipitation Rate	49.90	inches
3	E = Evapotranspiration Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	R(c) = P - (E + Q)	49.90	inches
6	R(C) = R(c) x A	0.00	inches

D	*Water/Ponds*		
1	A = Fraction of Site in Water	0.000	fraction
2	P = Precipitation Rate	49.90	inches
3	E = Evaporation Rate	30.00	inches
4	Q = Runoff Rate	0.00	inches
5	M = Makeup Water	0.00	inches
6	R(d) = { P - (E+Q)} - M	19.90	inches
7	R(D) = R(d) x A	0.00	inches

E	*Natural*		
1	A = Fraction of Land in Cover Type	1.000	fraction
2	P = Precipitation Rate	49.90	inches
3	E = Evapotranspiration Rate	25.50	inches
4	Q = Runoff Rate	0.50	inches
5	R(e) = P - (E + Q)	23.90	inches
6	R(E) = R(e) x A	23.90	inches

F	*Impervous/Paved/Roads*	*Value*	*Units*
1	A = Fraction of Land in Cover Type	0.000	fraction
2	P = Precipitation Rate	49.90	inches
3	E = Evapotranspiration Rate	4.99	inches
4	Q = Runoff Rate	0.00	inches
5	R(f) = P - (E + Q)	44.91	inches
6	R(F) = R(f) x A	0.00	inches

G	*Other*		
1	A = Fraction of Land in Cover Type	0.000	fraction
2	P = Precipitation Rate	49.90	inches
3	E = Evapotranspiration Rate	25.50	inches
4	Q = Runoff Rate	0.00	inches
5	R(g) = P - (E + Q)	24.40	inches
6	R(G) = R(g) x A	0.00	inches

H	*Irrigation Recharge*		
1	A = Fraction of Land Irrigated	0.000	fraction
2	I = Irrigation Rate	24.00	inches
3	E = Evaptranspiration Rate	21.40	inches
4	Q = Runoff Rate	0.00	inches
5	R(h) = I - (E + Q)	2.60	inches
6	R(H) = R(H) x A	0.00	inches

I	*Wastewater Recharge*		
1	WDF = Wastewater Design Flow	0	gal/day
2	WDF = Wastewater Design Flow	0	cu ft/yr
3	A = Area of Site	2,306,502	sq ft
4	R(j) = WDF/A	0.00	feet
5	R(I) = Wastewater Recharge	0.00	inches

J	*Runoff Recharge*		
1	Q(A) = Runoff from Landscaped	0.000	inches
2	Q(B) = Runoff from Unfertilized Landscaping	0.000	inches
3	Q(C) = Runoff from Unvegetated	0.000	inches
4	Q(E) = Runoff from Natural	0.500	inches
5	Q(H) = Runoff from Other	0.000	inches
6	Q(I) = Runoff from Irrigation	0.00	inches
7	Q(tot) = Q(A)+Q(B)+Q(C)+Q(E)+Q(H)+Q(I)	0.50	inches

Total Site Recharge		
R(T) =	R(A)+R(B)+R(C)+R(D)+R(E)+R(F)+R(G)+R(H)+R(I)+R(J)+Q(tot)	
R(T) =	**24.40**	**inches**

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

SHEET 3

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

Crest Town Center; Existing Conditions
Bellport, NY 9/3/2018

SITE NITROGEN BUDGET

A	Sanitary Nitrogen-Residential	Value	Units
1	Number of Dwellings	0	units
2	Persons per Dwelling	1.00	capita
3	P = Population	0.00	capita
4	N = Nitrogen per person	10	lbs
6	N = (total; pre loss/removal)	0	lbs
7	LR = Leaching Rate	84%	percent
8	N(S) = P x N x LR	0.00	lbs
9	N = loss/removed	0.00	lbs

C	Sanitary Nitrogen (Wastewater Design Flow)		
1	CF = Commercial/STP Flow	0	gal/day
2	CF = Commercial/STP Flow	0	liters/yr
5	N =Nitrogen	10.00	mg/l
6	N = Nitrogen	0.00	lbs
7	LR = Leaching Rate	100%	percent
8	N(S) = CF x N x LR	0	milligrams
9	N(S) = Sanitary Nitrogen	0.00	lbs
10	N = loss/removed	0.00	lbs

E	Fertilized Land (Fertilized Landscaping)		
1	A = Area of Land Fertilized	0	sq ft
2	AR = Application Rate	1.50	lbs/1000 sf
3	N(T) = Nitrogen (total applied)	0.00	lbs
4	LR = Leaching Rate	30%	percent
5	N(F1) = A x AR x LR	0.00	lbs
6	N = loss/removed	0.00	lbs

G	Atmospheric Nitrogen (existing condition)		
1	Application Load	0.041	lbs/1000 sf
2	Area of Natural/Wetlands/1000 sf	2,307	1000 sf
3	Leaching Rate	25%	percent
4	Atmos. N Load-1 (natural/wetlands)	23.64	lbs/year
5	Area of turf/landscaped/1000 sf	0	1000 sf
6	Leaching Rate	20%	percent
7	Atmos. N Load-2 (golf/turf)	0.00	lbs/year
8	Area of Impervious/Agricult/1000 sf	0	1000 sf
9	Leaching Rate	40%	percent
10	Atmos. N Load-3 (ag; imperv; other)	0.00	lbs/year
11	N(at) = N Load 1 + 2 +3	23.64	lbs
12	N = loss/removed	70.92	lbs

B	Cat Waste Nitrogen	Value	Units
1	Number of Cats per Dwelling	0.00	cats/dwelling
2	Number of Cats (Cats/dwelling x dwellings)	0	cats
3	Cat Waste Nitrogen Load	3.22	lbs/cat/year
4	N(p) = AR x cats x Adjustment (if applicable)	0.00	lbs/year
5	LR = Leaching Rate	25%	percent
6	N(P) = N(p) x LR	0.00	lbs
7	N = (loss/removed)	0.00	lbs

B'	Dog Waste Nitrogen	Value	Units
1	Number of Dogs per Dwelling	0.00	dogs/dwelling
2	Number of Dogs (Dogs/dwelling x dwellings)	0	dogs
3	Dog Waste Nitrogen Load	4.29	lbs/dog/year
4	N(p) = AR x dogs x Adjustment (if applicable)	0.00	lbs/year
5	LR = Leaching Rate	25%	percent
6	N(P) = N(p) x LR	0.00	lbs
7	N = (loss/removed)	0.00	lbs

D	Water Supply Nitrogen (other than wastewater, if applicable)		
1	WDF = Wastewater Design Flow	0	gal/day
2	WDF = Wastewater Design Flow	0	liters/yr
3	N = Nitrogen in Water Supply	10.00	mg/l
4	N(WW) = WDF x N	0	milligrams
5	N(WW) = Wastewater Nitrogen	0.00	lbs

F	Fertilized Land (Unfertilized Landscaping)		
1	A = Area of Land Fertilized 2	0	sq ft
2	AR = Application Rate	0.00	lbs/1000 sf
3	N(T) = Nitrogen (total applied)	0.00	lbs
4	LR = Leaching Rate	0%	percent
5	N(F2) = A x AR x LR	0.00	lbs
6	N = loss/removed	0.00	lbs

H	Irrigation Nitrogen		
1	R = Irrigation Recharge (inches)	0.00	inches
2	R = Irrigation Rate (feet)	0.0000	feet
3	A = Area of Land Irrigated	1,045,440	sq ft
4	R(I) = R(irr) x A	0	cu ft
5	R(I) = Site Irrigation (liters)	0	liters
6	N = Nitrogen in Water Supply	2.00	mg/l
7	N(T) = Nitrogen (total applied)	0.00	lbs
8	LR = Leaching Rate	10%	percent
9	N(irr) = R(I) x N x LR	0	milligrams
10	N(irr) = Irrigation Nitrogen	0.00	lbs
11	N = loss/removed	0.00	lbs

Total Site Nitrogen		
N=	N(S) + N(P) + N(WW) + N(F1) + N(F2) + N(ppt) + N(irr)	
N=	**23.64**	lbs

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

SHEET 4

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

Crest Town Center; Existing Conditions
Bellport, NY 9/3/2018

FINAL COMPUTATIONS

A	*Nitrogen in Recharge (concentr.)*	*Value*	*Units*
1	N = Total Nitrogen (lbs)	23.64	lbs
2	N = Total Nitrogen (milligrams)	10,733,307	milligrams
3	R(T) = Total Recharge (inches)	24.40	inches
4	R(T) = Total Recharge (feet)	2.03	feet
5	A = Area of Site	2,306,502	sq ft
6	R = R(T) x A	4,689,887	cu ft
7	R = Site Recharge Volume	132,817,611	liters
9	NR = N/R	0.08	mg/l

CONCENTRATION OF
NITROGEN IN RECHARGE

0.08

B	*Site Recharge Summary*	*Value*	*Units*
1	R(T) = Total Site Recharge	24.40	inches/yr
2	R = Site Recharge Volume	4,689,887	cu ft/yr
3	R = Site Recharge Volume	35,082,796	gal/yr
4	R = Site Recharge Volume	35.08	MG/yr

Project Nitrogen	0.00 lbs
Atmospheric Nitrogen	23.64 lbs
Total	23.64 lbs

Conversions used in SONIR	
Acres x 43,560 = Square Feet	Gallons x 0.1337 = Cubic Feet
Cubic Feet x 7.48052 = Gallons	Gallons x 3.785 = Liters
Cubic Feet x 28.32 = Liters	Grams / 1,000 = Milligrams
Days x 365 = Years	Grams x 0.002205 = Pounds
Feet x 12 = Inches	Milligrams / 1,000 = Grams

Nitrogen Load Summary - On-Site	Load	Percent
Sanitary Nitrogen (On-Site Wastewater)	0.00	0.00%
Fertilized Landscaping	0.00	0.00%
Dog Waste Nitrogen	0.00	0.00%
Cat Waste Nitrogen	0.00	0.00%
Atmospheric Nitrogen	23.64	100.00%
Irrigation Nitrogen	0.00	0.00%
Total Pounds Nitrogen	23.64	100.00%

Appendix E-3
SONIR Model Results, Proposed Project

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

SHEET 1

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

Crest Town Center; Proposed Project
Bellport, NY 9/3/2018

DATA INPUT FIELD

A	Site Recharge Parameters	Value	Units
1	Area of Site	52.95	acres
2	Precipitation Rate	49.90	inches
3	Acreage of Fertilized Landscaping	12.24	acres
4	Fraction of Land in above	0.231	fraction
5	Evapotranspiration from above	25.50	inches
6	Runoff from above	0.50	inches
7	Acreage of Unfertilized Landscaping	0.00	acres
8	Fraction of above	0.000	fraction
9	Evapotranspiration from above	25.50	inches
10	Runoff from above	0.50	inches
11	Acreage of Unvegetated/Dirt Roads	0.00	acres
12	Fraction of above	0.000	fraction
13	Evapotranspiration from above	0.00	inches
14	Runoff from above	0.00	inches
15	Acreage of Water/Ponds	0.00	acres
16	Fraction of Site in above	0.000	fraction
17	Evaporation from above	30.00	inches
18	Makeup Water (if applicable)	0.00	inches
19	Acreage of Natural	13.11	acres
20	Fraction of above	0.248	fraction
21	Evapotranspiration from above	25.50	inches
22	Runoff from above	0.50	inches
23	Acreage of Impervious/Paved/Bldgs	27.60	acres
24	Fraction of Land in above	0.521	fraction
25	Evapotrans. from above	4.99	inches
26	Runoff from Impervious	0.00	inches
23	Acreage of Other	0.00	acres
24	Fraction of Land in above	0.000	fraction
25	Evapotrans. from above	25.50	inches
26	Runoff from above	0.00	inches
27	Acreage of Land Irrigated	12.24	acres
28	Fraction of Land Irrigated	0.231	fraction
29	Irrigation Rate	24.00	inches
30	Number of Dwellings (ALF/MF/PRC)	396	units
31	Water Use per Dwelling	241	gal/day
32	Wastewater Design Flow	95,614	gal/day
33	Adusted Wastewater Design Flow	0	gal/day

B	Nitrogen Budget Parameters	Value	Units
1	Persons per Dwelling	1.00	persons
2	Nitrogen per Person per Year	10.0	lbs
3	a. Sanitary Nitrogen Leaching Rate	84%	percent
3	b. Treated Sanitary Nitrogen Leaching Rate	100%	percent
4	Fertilized Landscaping	12.24	acres
5	Fertilizer Application Rate (for above)	1.50	lbs/1000 sq ft
6	Fertilizer Nitrogen Leaching Rate (for above)	30%	percent
7	Fertilized Land (other, if applicable)	0.00	acres
8	Fertilizer Application Rate (for above)	0.00	lbs/1000 sq ft
9	Fertilizer Nitrogen Leaching Rate (for above)	0%	percent
10	Outdoor Cat Population	0.00	pets/dwelling
11	Cat Waste Nitrogen Load	3.22	lbs/pet/year
12	Outdoor Dog Population	0.35	pets/dwelling
13	Dog Waste Nitrogen Load	4.29	lbs/pet/year
14	Pet Waste Nitrogen Leaching Rate	25%	percent
15	Area of Land Irrigated	12.24	acres
16	Irrigation Rate	24.00	inches
17	Irrigation Nitrogen Leaching Rate	10%	percent
18	Atmospheric Nitrogen Application/Load	0.041	lbs/1000 sq ft
19	Atmos. N Leaching Rate (Natural/Wetlands)	25%	percent
20	Atmos. N Leaching Rate (Turf/Landscaped)	20%	percent
21	Atmos. N. Leaching Rate (Ag; Imperv; Other)	40%	percent
22	Nitrogen in Water Supply	2.00	mg/l
23	Nitrogen in Treated Sanitary Flow	10.00	mg/l

C	Comments
1)	Please refer to user manual for data input instructions; updated per LINAP
2)	Wastewater flow adjusted due to off-site conveyance to an existing SCDPW STP that is subject to a SPDES permit and has existing flow capacity to serve the project.
3)	No outdoor cat population expected; Dog population is 25% of MF/PRC units

Developed Area	39.84	35%
Natural/Unvegetated/Revegetated Area	74.46	65%
Total Acreage Check	114.30	100%

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

SHEET 2

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

Crest Town Center; Proposed Project
Bellport, NY 9/3/2018

SITE RECHARGE COMPUTATIONS

A	Fertilized Landscaping	Value	Units
1	A = Fraction of Land in Cover Type	0.231	fraction
2	P = Precipitation Rate	49.90	inches
3	E = Evapotranspiration Rate	25.50	inches
4	Q = Runoff Rate	0.50	inches
5	R(a) = P - (E + Q)	23.90	inches
6	R(A) = R(a) x A	5.52	inches

B	Unfertilized Landscaping	Value	Units
1	A = Fraction of Land in Cover Type	0.000	fraction
2	P = Precipitation Rate	49.90	inches
3	E = Evapotranspiration Rate	25.50	inches
4	Q = Runoff Rate	0.50	inches
5	R(b) = P - (E + Q)	23.90	inches
6	R(B) = R(b) x A	0.00	inches

C	Unvegetated/Dirt Roads	Value	Units
1	A = Fraction of Land in Cover Type	0.000	fraction
2	P = Precipitation Rate	49.90	inches
3	E = Evapotranspiration Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	R(c) = P - (E + Q)	49.90	inches
6	R(C) = R(c) x A	0.00	inches

D	Water/Ponds		
1	A = Fraction of Site in Water	0.000	fraction
2	P = Precipitation Rate	49.90	inches
3	E = Evaporation Rate	30.00	inches
4	Q = Runoff Rate	0.00	inches
5	M = Makeup Water	0.00	inches
6	R(d) = { P - (E+Q)} - M	19.90	inches
7	R(D) = R(d) x A	0.00	inches

E	Natural		
1	A = Fraction of Land in Cover Type	0.248	fraction
2	P = Precipitation Rate	49.90	inches
3	E = Evapotranspiration Rate	25.50	inches
4	Q = Runoff Rate	0.50	inches
5	R(e) = P - (E + Q)	23.90	inches
6	R(E) = R(e) x A	5.92	inches

F	Impervous/Paved/Roads	Value	Units
1	A = Fraction of Land in Cover Type	0.521	fraction
2	P = Precipitation Rate	49.90	inches
3	E = Evapotranspiration Rate	4.99	inches
4	Q = Runoff Rate	0.00	inches
5	R(f) = P - (E + Q)	44.91	inches
6	R(F) = R(f) x A	23.41	inches

G	Other		
1	A = Fraction of Land in Cover Type	0.000	fraction
2	P = Precipitation Rate	49.90	inches
3	E = Evapotranspiration Rate	25.50	inches
4	Q = Runoff Rate	0.00	inches
5	R(g) = P - (E + Q)	24.40	inches
6	R(G) = R(g) x A	0.00	inches

H	Irrigation Recharge		
1	A = Fraction of Land Irrigated	0.231	fraction
2	I = Irrigation Rate	24.00	inches
3	E = Evaptranspiration Rate	21.40	inches
4	Q = Runoff Rate	0.00	inches
5	R(h) = I - (E + Q)	2.60	inches
6	R(H) = R(H) x A	0.60	inches

I	Wastewater Recharge		
1	WDF = Wastewater Design Flow	0	gal/day
2	WDF = Wastewater Design Flow	0	cu ft/yr
3	A = Area of Site	2,306,502	sq ft
4	R(j) = WDF/A	0.00	feet
5	R(I) = Wastewater Recharge	0.00	inches

J	Runoff Recharge		
1	Q(A) = Runoff from Landscaped	0.116	inches
2	Q(B) = Runoff from Unfertilized Landscaping	0.000	inches
3	Q(C) = Runoff from Unvegetated	0.000	inches
4	Q(E) = Runoff from Natural	0.124	inches
5	Q(H) = Runoff from Other	0.000	inches
6	Q(I) = Runoff from Irrigation	0.00	inches
7	Q(tot) = Q(A)+Q(B)+Q(C)+Q(E)+Q(H)+Q(I)	0.24	inches

Total Site Recharge		
R(T) =	R(A)+R(B)+R(C)+R(D)+R(E)+R(F)+R(G)+R(H)+R(I)+R(J)+Q(tot)	
R(T) =	35.69	inches

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

SHEET 3

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

Crest Town Center; Proposed Project
Bellport, NY 9/3/2018

SITE NITROGEN BUDGET

A	*Sanitary Nitrogen-Residential*	*Value*	*Units*
1	Number of Dwellings	0	units
2	Persons per Dwelling	1.00	capita
3	P = Population	0.00	capita
4	N = Nitrogen per person	10	lbs
6	N = (total; pre loss/removal)	0	lbs
7	LR = Leaching Rate	84%	percent
8	N(S) = P x N x LR	0.00	lbs
9	N = loss/removed	0.00	lbs

B	*Cat Waste Nitrogen*	*Value*	*Units*
1	Number of Cats per Dwelling	0.00	cats/dwelling
2	Number of Cats (Cats/dwelling x dwellings)	0	cats
3	Cat Waste Nitrogen Load	3.22	lbs/cat/year
4	N(p) = AR x cats x Adjustment (if applicable)	0.00	lbs/year
5	LR = Leaching Rate	25%	percent
6	N(P) = N(p) x LR	0.00	lbs
7	N = (loss/removed)	0.00	lbs

B'	*Dog Waste Nitrogen*	*Value*	*Units*
1	Number of Dogs per Dwelling	0.35	dogs/dwelling
2	Number of Dogs (Dogs/dwelling x dwellings)	93	dogs
3	Dog Waste Nitrogen Load	4.29	lbs/dog/year
4	N(p) = AR x dogs x Adjustment (if applicable)	399.40	lbs/year
5	LR = Leaching Rate	25%	percent
6	N(P) = N(p) x LR	99.85	lbs
7	N = (loss/removed)	299.55	lbs

C	*Sanitary Nitrogen (Wastewater Design Flow)*		
1	CF = Commercial/STP Flow	0	gal/day
2	CF = Commercial/STP Flow	0	liters/yr
5	N =Nitrogen	10.00	mg/l
6	N = Nitrogen	0.00	lbs
7	LR = Leaching Rate	100%	percent
8	N(S) = CF x N x LR	0	milligrams
9	N(S) = Sanitary Nitrogen	0.00	lbs
10	N = loss/removed	0.00	lbs

D	*Water Supply Nitrogen (other than wastewater, if applicable)*		
1	WDF = Wastewater Design Flow	0	gal/day
2	WDF = Wastewater Design Flow	0	liters/yr
3	N = Nitrogen in Water Supply	10.00	mg/l
4	N(WW) = WDF x N	0	milligrams
5	N(WW) = Wastewater Nitrogen	0.00	lbs

E	*Fertilized Land (Fertilized Landscaping)*		
1	A = Area of Land Fertilized	533,174	sq ft
2	AR = Application Rate	1.50	lbs/1000 sf
3	N(T) = Nitrogen (total applied)	799.76	lbs
4	LR = Leaching Rate	30%	percent
5	N(F1) = A x AR x LR	239.93	lbs
6	N = loss/removed	559.83	lbs

F	*Fertilized Land (Unfertilized Landscaping)*		
1	A = Area of Land Fertilized 2	0	sq ft
2	AR = Application Rate	0.00	lbs/1000 sf
3	N(T) = Nitrogen (total applied)	0.00	lbs
4	LR = Leaching Rate	0%	percent
5	N(F2) = A x AR x LR	0.00	lbs
6	N = loss/removed	0.00	lbs

G	*Atmospheric Nitrogen (existing condition)*		
1	Application Load	0.041	lbs/1000 sf
2	Area of Natural/Wetlands/1000 sf	571	1000 sf
3	Leaching Rate	25%	percent
4	Atmos. N Load-1 (natural/wetlands)	5.85	lbs/year
5	Area of turf/landscaped/1000 sf	533	1000 sf
6	Leaching Rate	20%	percent
7	Atmos. N Load-2 (golf/turf)	4.37	lbs/year
8	Area of Impervious/Agricult/1000 sf	1,202	1000 sf
9	Leaching Rate	40%	percent
10	Atmos. N Load-3 (ag; imperv; other)	19.72	lbs/year
11	N(at) = N Load 1 + 2 +3	29.94	lbs
12	N = loss/removed	64.62	lbs

H	*Irrigation Nitrogen*		
1	R = Irrigation Recharge (inches)	0.60	inches
2	R = Irrigation Rate (feet)	0.0501	feet
3	A = Area of Land Irrigated	1,045,440	sq ft
4	R(I) = R(irr) x A	52,361	cu ft
5	R(I) = Site Irrigation (liters)	1,482,859	liters
6	N = Nitrogen in Water Supply	2.00	mg/l
7	N(T) = Nitrogen (total applied)	6.54	lbs
8	LR = Leaching Rate	10%	percent
9	N(irr) = R(I) x N x LR	296,572	milligrams
10	N(irr) = Irrigation Nitrogen	0.65	lbs
11	N = loss/removed	5.89	lbs

Total Site Nitrogen		
N=	N(S) + N(P) + N(WW) + N(F1) + N(F2) + N(ppt) + N(irr)	
N=	**370.37**	lbs

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

SHEET 4

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

Crest Town Center; Proposed Project
Bellport, NY 9/3/2018

FINAL COMPUTATIONS

A	*Nitrogen in Recharge (concentr.)*	*Value*	*Units*
1	N = Total Nitrogen (lbs)	370.37	lbs
2	N = Total Nitrogen (milligrams)	168,150,106	milligrams
3	R(T) = Total Recharge (inches)	35.69	inches
4	R(T) = Total Recharge (feet)	2.97	feet
5	A = Area of Site	2,306,502	sq ft
6	R = R(T) x A	6,860,264	cu ft
7	R = Site Recharge Volume	194,282,688	liters
9	NR = N/R	0.87	mg/l

CONCENTRATION OF
NITROGEN IN RECHARGE

0.87

B	*Site Recharge Summary*	*Value*	*Units*
1	R(T) = Total Site Recharge	35.69	inches/yr
2	R = Site Recharge Volume	6,860,264	cu ft/yr
3	R = Site Recharge Volume	51,318,345	gal/yr
4	R = Site Recharge Volume	51.32	MG/yr

Project Nitrogen	340.43 lbs
Atmospheric Nitrogen	29.94 lbs
Total	370.37 lbs

Conversions used in SONIR	
Acres x 43,560 = Square Feet	Gallons x 0.1337 = Cubic Feet
Cubic Feet x 7.48052 = Gallons	Gallons x 3.785 = Liters
Cubic Feet x 28.32 = Liters	Grams / 1,000 = Milligrams
Days x 365 = Years	Grams x 0.002205 = Pounds
Feet x 12 = Inches	Milligrams / 1,000 = Grams

Nitrogen Load Summary - On-Site	Load	Percent
Sanitary Nitrogen (On-Site Wastewater)	0.00	0.00%
Fertilized Landscaping	239.93	64.78%
Dog Waste Nitrogen	99.85	26.96%
Cat Waste Nitrogen	0.00	0.00%
Atmospheric Nitrogen	29.94	8.08%
Irrigation Nitrogen	0.65	0.18%
Total Pounds Nitrogen	370.37	100.00%

APPENDIX F

QUALIFICATIONS OF ECOLOGIST

Hannah Emouna

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

Title

Environmental Scientist
Division of Environmental Wetlands & Resource Assessment

Education & Training

- Bachelor of Science in Wildlife Science, cum laude, State University of New York College of Environmental Science and Forestry
- Advanced Graduate Certificate in Geospatial Science, Stony Brook University- State of New York
- Master of Arts in Biology- Concentration in Applied Ecology, Stony Brook University- State of New York

Professional Affiliations & Certifications

- NYSDEC Endangered/Threatened Species: Scientific License
- Long Island Native Plant Initiative (LINPI): Active Board Member
- New York State GIS Association (NYSGIS)
- Long Island GIS Association (LIGIS)
- Ecological Society of America (ESA)
- Long Island Native Plant Initiative (LINPI), Board Member
- Ecological Society of America, Member

Professional Experience

Hannah Emouna holds a Master's Degree in Biology with a concentration in Applied Ecology, an Advanced Graduate Certificate in Geospatial Science and a Bachelor's Degree in Wildlife Science. Her extensive training in geospatial science includes the use of remote sensing programs and GIS mapping across multiple platforms. Ms. Emouna is trained to perform environmental monitoring and assessment of both wildlife and plant populations. She regularly performs environmental monitoring that includes habitat composition, analysis, and delineation, ecological modeling and field assessments and for a variety of terrestrial and marine habitats. She holds a NYSDEC Endangered/Threatened Species: Scientific license which authorizes the collection and release of select endangered and threatened species within multiple counties across New York State. Ms. Emouna serves as a point of contact for NP&V and oversees wetland permit applications with the NYSDEC, Army Corps of Engineers (ACOE), NYS Department of State (DOS), and Towns and Villages for several projects across Long Island.

Relevant Experience

- Picnic Beach Expanded EAF, Endangered/Threatened Species Assessment
- Hempstead Plains Endangered/Threatened Species Assessment
- Habitat Suitability Study for the Northern Bobwhite Quail (*Colinus virgianus*) in Suffolk County, NY- Collaborated with members of the Suffolk County Soil and Water Conservation District to utilized GIS, remote sensing, and citizen science combined with the known life history characteristics of the species to locate potentially suitable habitat for Northern Bobwhite quail in Suffolk County. Presented recommendations for alternate monitoring of released individuals and located historical breeding locations with the potential to support the species.
- Threatened Species Monitor – MB Environmental Consulting Inc., Fire Island, New York- Determined appropriate Peregrine Falcon nest box locations based. Monitored breeding activity of adult falcons. Completed tri-weekly assessments of chick health and survival. Recorded the daily activities of breeding adults and offspring including movement, hunting activity, and prey species identification. Assessed the impact of construction activities on nest success and overall bird health. Composed and distributed reports, as well as weekly summaries to multiple departments including the NYSDOT and NYS DEC.
- Field Researcher – White Sea Biological Station, Russia- Completed avian species surveys and point counts. Collected, classified, and analyzed marine invertebrates. Classified and analyzed lichen growth rates to determine time of last disturbance.
- Wildlife Rehabilitation Intern – Sweetbriar Nature Center Smithtown, NY- Provided rehabilitative care to various native avian and mammalian species. Assisted in wildlife intake assessments and the creation\implementation of care plans. Guided educational group tours.
- Field Researcher – Cranberry Lake Biological Station, Cranberry Lake, New York- Assisted in mist netting, measuring, and collection of blood samples for genetic analysis of the white-throated sparrow as part of an ongoing project run by Indiana State University. Analyzed minnow populations to determined relative abundance and distributions using seine nets. Participated in a small mammal population surveys.

APPENDIX G

POWER MODEL (ECOLOGICAL CONDITIONS)

PROJECTION OF WILDLIFE ECOLOGICAL RESPONSE (POWER)

NELSON, POPE & VOORHIS, LLC, MICROCOMPUTER MODEL

SPECIES LIST

INTRODUCTION

This appendix has been included to present the results of a computer model used to investigate the various wildlife species which can be expected to be found on the site considering the habitats established. This model was developed by and for the use of Nelson, Pope & Voorhis, LLC using available information and references for the various species. The model utilizes Excel spreadsheets to identify wildlife species commonly found in various Long Island habitats, based upon thorough research of available literature. The habitats investigated consisted of Pine Barren, Successional Woodland, Successional Shrubland, Successional Field, Wooded Swamp, and Terrestrial Cultural (agricultural). Some of the species listed in this model would not be expected on the property given the surrounding development, but are present in similar habitats.

The first column identifies the common name of the species, presented with the main common name in alphabetical order (for example: red-tailed hawk would come before blue jay). The scientific name of particular species is in the second column. The third column shows the legal status of the species, of which there are four possible entries (Endangered, Threatened, Special Concern and Local Concern). The fourth column indicates the seasons during which the species might be expected to be present and the fifth column, of particular importance to the environmental setting, contains information on frequency of the species in the habitat (abundant, common, rare and non expected); the species activity in the habitat (nesting, hunting and resting). References are provided with the reference list provided at the end of the appendix. The printout contained in this appendix, coupled with the discussions provided in the main body of the report, provides significant information of the wildlife found, or expected to be found on site.

Wooded Edge Species - Inventory and Characteristics

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	References
Birds								
red-winged blackbird	Agelaius phoeniceus	none		X	X	Early	C / N,F	4 6
Eastern bluebird	*Sialia sialis*	none		X	X	Early	R / N,F	4 7
common bobwhite	*Colinus virginianus*	none	X	X	X	X	C / N,F	4 8
indigo bunting	*Passerina cyanea*	none		Late	X	Early	C / N,F	4 20
Northern cardinal	*Cardinalis cardinalis*	none	X	X	X	X	C / N,F	4 20
gray catbird	*Dumetella carolinensis*	none		Late	X		A / N,F	4 9
black capped chickadee	*Parus atricapillus*	none	X	X	X	X	A / N,F	4 11
brown-headed cowbird	*Molothrus ater*	none		X	X	Early	A / N,F	4 6
American crow	*Corvus brachyrhynchos*	none	X	X	X	X	A / N,H	4 11
black-billed cuckoo	*Coccyzus erythropthalmus*	none		Late	X		C / N,F	4 11
yellow-billed cuckoo	*Coccyzus americanus*	none		Late	X		C / N,F	4 12
mourning dove	*Zenaida macroura*	none	X	X	X	X	C / N,H	4 8
American goldfinch	*Carduelis tristis*	none		X	X	X	C / N,F	4 20
house finch	*Carpodacus mexicanus*	none		X	X	X	A / N,F	4 20
purple finch	*Carpodacus purpureus*	none	X	X	X	X	C / N,F	4 20
common flicker	*Colaptus auratus*	none	X	X	X	X	C / N,F	4 14
great-crested flycatcher	*Myiarchus crinitus*	none		Late	X		C / N,F	4 15
least flycatcher	*Empidonax minimus*	none		Late	X		R / N,F	4 15
common grackle	*Quiscalus quiscula*	none	X	X	X	X	A / N,F	4 6
ruffed grouse	*Bonasa umbellus*	none	X	X	X	X	C / N,F	4 8
rose-breasted grosbeak	*Pheucticus ludovicianus*	none		Late	X	Early	C / N,F	4 20
Northern harrier	*Circus cyaneus*	threatened	X	X	X	X	R / H	4 16
Cooper's hawk	*Accipiter cooperii*	special concern		X	X		N / N,H	4 17
red-tailed hawk	*Buteo jamaicensis*	none	X	X	X	X	C / H	4 16
sharp-shinned hawk	*Accipiter striatus*	special concern	X	X	X	X	N / N,F	4 16
blue jay	*Cyanocitta cristatta*	none	X	X	X	X	A / N,F	4 10
Northern (dark-eyed) junco	*Junco hyemalis*	none		X	X	Early	R / N,F	4 21
American kestrel	*Falco sparverius*	none	X	X	X	X	C / N,H	4 17
Eastern kingbird	*Tyrannus tyrannus*	none		X	X	Early	A / N,F	4 15
purple martin	*Progne subis*	none		Late	X		C / N,F	4 15
Northern mockingbird	*Mimus polyglottos*	none	X	X	X	X	A / N,F	4 9
common nighthawk	*Chordeiles minor*	special concern		Late	X		R / N,F	4 12
northern oriole	*Icterus galbula*	none		Late	X		R / N,F	4 6
barn owl	*Tyto alba*	none	X	X	X	X	R / H	4 17

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	References
common screech owl	*Otus asio*	none	X	X	X	X	C / N	4 17
great-horned owl	*Bubo virginianus*	none	X	X	X	X	C / N,H	4 17
ring-necked pheasant	*Phasianus colchicus*	none	X	X	X	X	C / N,F	4 8
American redstart	*Setophaga ruticilla*	none		Late	X	X	C / N,F	4 19
American robin	*Turdus migratorius*	none		X	X	Early	A / N,F	4 7
yellow-bellied sapsucker	*Sphyrapicus varius*	none		Late	X	Early	C / N,F	14
chipping sparrow	*Spizella passerina*	none	X	X	X	X	C / N,F	4 21
fox sparrow	*Passerella iliaca*	none	X	X		X	C / F	20 21
field sparrow	*Spizella pusilla*	none		X	X	X	R / N,F	4 21
house sparrow	*Passer domesticus*	none	X	X	X	X	C / N,F	4 20
song sparrow	*Melospiza melodia*	none	X	X	X	X	C / N,F	4 22
white-crowned sparrow	*Zonotrichia leucophrys*	none	X	X		X	C / F	22 32
white-throated sparrow	*Zonotrichia albicollis*	none	X	X	X	X	R / N,F	4 22
European starling	*Sturnus vulgaris*	none	X	X	X	X	A / N,F	4 23
barn swallow	*Hirundo rustica*	none		Late	X		C / N,F	4 15
chimney swift	*Chaetura pelagica*	none		X	X		C / F	4 42
brown thrasher	*Toxostoma rufum*	none		X	X	Early	C / N,F	4 9
hermit thrush	*Catharus guttatus*	none	X	X	X	X	N / N,F	4 7
wood thrush	*Hylocichla mustelina*	none		X	X	Early	R / N,F	4 7
tufted titmouse	*Parus bicolor*	none	X	X	X	X	C / N,F	4 11
rufous-sided towhee	*Pipilo erythrophthalmus*	none		Late	X	Early	A / N,F	4 20
red-eyed vireo	*Vireo olivaceus*	none		Late	X		C / N,F	4 23
yellow throated vireo	*Vireo flavifrons*	none		Late	X		C / N,F	4 23
black-and-white warbler	*Mniotilta varia*	none		X	X		C / N,F	4 18
blue-winged warbler	*Vermivora pinus*	none		Late	X		C / N,F	4 14
chestnut-sided warbler	*Dendroica pensylvanica*	none		Late	X		R / N,F	4 19
cedar waxwing	*Bombycilla cedrorum*	none		X	X	Early	C / N,F	4 23 32
whip-poor-will	*Caprimulgus vociferous*	special concern		Late	X		C / N	4 12
Eastern wood-peewee	*Contopus virens*	none		X	X		C / N,F	4 15
American woodcock	*Philhela minor*	none		X	X	X	C / N,F	4 30
downy woodpecker	*Picoides pubescens*	none	X	X	X	X	A / N,F	4 14
hairy woodpecker	*Picoides villosus*	none	X	X	X	X	C / N,F	4 14
red-bellied woodpecker	*Melanerpes carolinus*	none	X	X	X	X	C / N,F	4 14
red-headed woodpecker	*Melanerpes erythrocephalus*	special concern		X	X	Early	C / N,F	4 14
house wren	*Troglodytes aedon*	none		Late	X	Early	C / N,F	4 9
Mammals								
big-brown bat	*Eptesicus fuscus*	none	X	X	X	X	C / N,F	1 29
hoary bat	*Lasiurus borealis*	none			Late	Early	C / N,F	45

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	References
Keen's bat	*Myotis keenii*	none			X	Early	R / N	1 29
little-brown bat	*Myotis lucifugus*	none	X	X	X	X	C / N,F	1 29
red bat	*Lasiurus borealis*	none		Late	X	Early	C / N,F	1 29
Eastern pipistrelle	*Pipistrellus subflavus*	none		X	X	Early	R / N,F	1 29
silver-haired bat	*Lasionycteris noctivagans*	none			X		R / N,F	1 29
Eastern chipmunk	*Tamis striatus*	none	X	X	X	X	C / N,F	1 29
Eastern cottontail	*Sylvilagus floridanus*	none	X	X	X	X	A / N,F	1 29
white-tailed deer	*Odocoileus virginianus*	none	X	X	X	X	C / N,F	1 25 29
red fox	Vulpes vulpes	none	X	X	X	X	C / H	1 29
Eastern mole	Scalopus aquaticus	none	X	X	X	X	C / N,F	1 29
house mouse	Mus musculus	none	X	X	X	X	N / N,F	1 29
meadow-jumping mouse	Zapus hudsonicus	none	X	X	X	X	R / N,F	1 29
white-footed mouse	Peromyscus leucopus	none	X	X	X	X	C / N,F	1 29
Virginia opossum	Didelphis virginiana	none	X	X	X	X	C / N,F	1 29
racoon	Procyon lotor	none	X	X	X	X	C / N,F	1 29
black rat	Rattus rattus	none	X	X	X	X	R / N,F	1 29
Norway rat	Rattus norvegicus	none	X	X	X	X	C / N,F	1 29
least shrew	Cryptotis parva	none	X	X	X	X	N / N,F	1 29
short-tailed shrew	Blarina breuicauda	none	X	X	X	X	A / N,F	1 29
striped skunk	Mephitis mephitis	none	X	X	X	X	N / N,F	1 29
Eastern gray squirrel	Sciurus carolinensis	none	X	X	X	X	C / N,F	1 29
pine vole	Microtus pinetorum	none	X	X	X	X	C / N,F	1 29
long-tailed weasel	Mustela frenata	none	X	X	X	X	R / N,H	1 29
woodchuck	Marmota monax	none	X	X	X	X	R / N,F	1 29
Herptiles								
common gray treefrog	Hyla versicolor	none	X	X	X	X	C / N,F	33 37
Eastern garter snake	Thamnophis sirtalis	none	X	X	X	X	C / N,F	38 40
eastern milk snake	Lampropettis d. triangulum	none	X	X	X	X	C / N,F	38 39

KEY:

Frequency:	*Activity:*
A- abundant	*N- nesting*
C- common	*H- hunting*
R- rare	*R- resting*
N- not expected	*F- foraging*

Pine Barren Species - Inventory and Characterisitics

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	Reference
Birds								
common bobwhite	*Colinus virginianus*	none	X	X	X	X	R / N,F	4 8
gray catbird	*Dumetella carolinensis*	none		Late	X		R / N,F	4 9
black capped chickadee	*Parus atricapillus*	none	X	X	X	X	A / N,F / R	4 11
American crow	*Corvus brachyrhynchos*	none	X	X	X	X	A / N,H	4 11
house finch	*Carpodacus mexicanus*	none		X	X	X	A / N,F	4 20
purple finch	*Carpodacus purpureus*	none	X	X	X	X	C / N,F	4 20
common flicker	*Colaptus auratus*	none	X	X	X	X	C / N,F	4 14
common grackle	*Quiscalus quiscula*	none	X	X	X	X	C / N,F	4 6
ruffed grouse	*Bonasa umbellus*	none	X	X	X	X	R / N,F	4 8
broad-winged hawk	*Buteo platypterus*	none		X	X		R / N,H	4 16
Cooper's hawk	*Accipiter cooperii*	special concern		X	X		N / N,H	4 17
red-tailed hawk	*Buteo jamaicensis*	none	X	X	X	X	C / N,H	4 16
sharp-shinned hawk	*Accipiter striatus*	special concern	X	X	X	X	R / N,H	4 16
blue jay	*Cyanocitta cristatta*	none	X	X	X	X	A / N,F	4 10
Northern (dark-eyed) junco	*Junco hyemalis*	none		X	X	Early	R / N,F	4 21
Eastern kingbird	*Tyrannus tyrannus*	none		X	X	Early	C / N,F	4 15
golden-crowned kinglet	*Regulus satrapa*	none	X	X		X	R / N,H	4 7
ruby-crowned kinglet	*Regulus calendula*	none	X	X		X	R / N,H	4 7
white-breasted nuthatch	*Sitta carolinensis*	none	X	X	X	X	A / N,F	4 9
ovenbird	*Seiurus aurocapillus*	none		Late	X	Early	C / N,F	4 19
great-horned owl	*Bubo virginianus*	none	X	X	X	X	C / N,H	4 17
long-eared owl	*Asio otus*	none	X	X	X	X	C / N,H	4 17
yellow-bellied sapsucker	*Sphyrapicus varius*	none		Late	X	Early	R / N,F	14
pine siskin	*Carduelis pinus*	none	X	X	X	X	N / N,F	4 20
chipping sparrow	*Spizella passerina*	none	X	X	X	X	R / N,F	4 21
fox sparrow	*Passerella iliaca*	none	X	X		X	R / F	20 21
song sparrow	*Melospiza melodia*	none	X	X	X	X	R / N,F	4 22
European starling	*Sturnus vulgaris*	none	X	X	X	X	C / N,F	4 23
chimney swift	*Chaetura pelagica*	none		X	X		C / F	4 42
scarlet tanager	*Piranga olivacea*	none		X	X		C / N,F	4
brown thrasher	*Toxostoma rufum*	none		X	X	Early	R / N,F	4 9
hermit thrush	*Catharus guttatus*	none	X	X	X	X	C / N,F	4 7
wood thrush	*Hylocichla mustelina*	none		X	X	Early	R / N,F	4 7
pine warbler	*Dendroica pinus*	none		X	X	Early	C / N,F	4 19

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	Reference
prairie warbler	*Dendroica discolor*	none		Late	X	Early	C / N,F	4 19
yellow-rumped warbler	*Dendroica coronata*	none		X	X	Early	C / N,F	4 8
cedar waxwing	*Bombycilla cedrorum*	none		X	X	Early	R / N,F	4 23 32
whip-poor-will	*Caprimulgus vociferous*	special concern		Late	X		C / N	4 12
Eastern wood-peewee	*Contopus virens*	none		X	X		C / N,F	4 15
red-bellied woodpecker	*Melanerpes carolinus*	none	X	X	X	X	R / N,F	4 14
house wren	*Troglodytes aedon*	none		Late	X	Early	R / N,F	4 9
Mammals								
big-brown bat	*Eptesicus fuscus*	none	X	X	X	X	R / N,F	1 29
hoary bat	*Lasiurus borealis*	none			Late	Early	C / N,F	45
Keen's bat	*Myotis keenii*	none			X	Early	R / N	1 29
little-brown bat	*Myotis lucifugus*	none	X	X	X	X	C / N,F	1 29
red bat	*Lasiurus borealis*	none		Late	X	Early	C / N,F	1 29
Eastern pipistrelle	*Pipistrellus subflavus*	none		X	X	Early	R / N,F	1 29
silver-haired bat	*Lasionycteris noctivagans*	none			X		R / N,F	1 29
Eastern chipmunk	*Tamis striatus*	none	X	X	X	X	R / N,F	1 29
Eastern cottontail	*Sylvilagus floridanus*	none	X	X	X	X	C / N,F	1 29
white-tailed deer	*Odocoileus virginianus*	none	X	X	X	X	C / N,F	1 25 29
red fox	*Vulpes vulpes*	none	X	X	X	X	C / N,H	1 29
Eastern mole	*Scalopus aquaticus*	none	X	X	X	X	C / N,F	1 29
house mouse	*Mus musculus*	none	X	X	X	X	N / N,F	1 29
meadow-jumping mouse	*Zapus hudsonicus*	none	X	X	X	X	R / N,F	1 29
white-footed mouse	*Peromyscus leucopus*	none	X	X	X	X	C / N,F	1 29
Virginia opossum	*Didelphis virginiana*	none	X	X	X	X	C / N,F	1 29
racoon	*Procyon lotor*	none	X	X	X	X	C / N,F	1 29
masked shrew	*Sorex cinereus*	none	X	X	X	X	C / N,F	1 29
short-tailed shrew	*Blarina breuicauda*	none	X	X	X	X	A / N,F	1 29
striped skunk	*Mephitis mephitis*	none	X	X	X	X	N / N,F	1 29
Eastern gray squirrel	*Sciurus carolinensis*	none	X	X	X	X	C / N,F	1 29
southern-flying squirrel	*Glaucimys volans*	none	X	X	X	X	C / N,F	1 29
pine vole	*Microtus pinetorum*	none	X	X	X	X	C / N,F	1 29
long-tailed weasel	*Mustela frenata*	none	X	X	X	X	R / N,H	1 29
woodchuck	*Marmota monax*	none	X	X	X	X	R / N,F	1 29
Herptiles								
common gray treefrog	*Hyla versicolor*	none	X	X	X	X	C / N,F	33 37
red-backed salamander	*Plethodon cinerus cinerus*	none	X	X	X	X	R / N,F	34 36
Eastern tiger salamander	*Ambystoma tigrinum tigrinum*	endangered	X	X	X	X	R / F	36 38
marbled salamander	*Ambystoma opacum*	special concern	X	X	X	X	R / N,F	34 36 38

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	Reference
Eastern garter snake	*Thamnophis sirtalis*	none	X	X	X	X	C / N,F	38 40
eastern hognose snake	*Heterodon platyrhinos*	special concern	X	X	X	X	R / N,H	38
eastern milk snake	*Lampropettis d. triangulum*	none	X	X	X	X	C / N,F	38 39
Eastern spadefoot toad	Scaphiopus holbrooki	special concern	X	X	X	X	C / N,F	33
Fowler's toad	Bufo woodhousei fowleri	none	X	X	X	X	C / F	33 37
Eastern box turtle	Terrepene carolina	special concern	X	X	X	X	C / N,F	41

KEY:

Frequency:	Activity:
A- abundant	N- nesting
C- common	H- hunting
R- rare	R- resting
N- not expected	F- foraging

Pine Oak Forest Species - Inventory and Characteristics

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	References
Birds								
gray catbird	Dumetella carolinensis	none		Late	X		R / N,F	4 9
black capped chickadee	*Parus atricapillus*	none	X	X	X	X	A / N,F	4 11
brown-headed cowbird	*Molothrus ater*	none		X	X	Early	A / N,F	4 6
brown creeper	*Certhia familiaris*	none		X	X	Early	C / N,F	4 9
American crow	*Corvus brachyrhynchos*	none	X	X	X	X	A / N,H	4 11
yellow-billed cuckoo	*Coccyzus americanus*	none		Late	X		R / N,F	4 12
mourning dove	*Zenaida macroura*	none	X	X	X	X	C / N,H	4 8
house finch	*Carpodacus mexicanus*	none		X	X	X	A / N,F	4 20
purple finch	*Carpodacus purpureus*	none	X	X	X	X	C / N,F	4 20
common flicker	*Colaptus auratus*	none	X	X	X	X	C / N,F	4 14
great-crested flycatcher	*Myiarchus crinitus*	none		Late	X		C / N,F	4 15
common grackle	*Quiscalus quiscula*	none	X	X	X	X	C / N,F	4 6
ruffed grouse	*Bonasa umbellus*	none	X	X	X	X	R / N,F	4 8
broad-winged hawk	*Buteo platypterus*	none		X	X		R / N,H	4 16
Cooper's hawk	*Accipiter cooperii*	special concern		X	X		N / N,H	4 17
red-tailed hawk	*Buteo jamaicensis*	none	X	X	X	X	C / N,H	4 16
sharp-shinned hawk	*Accipiter striatus*	special concern	X	X	X	X	R / N,H	4 16
blue jay	*Cyanocitta cristatta*	none	X	X	X	X	A / N,F	4 10
Northern (dark-eyed) junco	*Junco hyemalis*	none	X			Late	C / N,F	4 21
Eastern kingbird	*Tyrannus tyrannus*	none		X	X	Early	C / N,F	4 15
golden-crowned kinglet	*Regulus satrapa*	none	X	X		X	R / N,H	4 7
ruby-crowned kinglet	*Regulus calendula*	none	X	X		X	R / N,H	4 7
Northern mockingbird	*Mimus polyglottos*	none	X	X	X	X	C / N,F	4 9
white-breasted nuthatch	*Sitta carolinensis*	none	X	X	X	X	A / N,F	4 9
northern oriole	*Icterus galbula*	none		Late	X		R / N,F	4 6
ovenbird	*Seiurus aurocapillus*	none		Late	X	Early	C / N,F	4 19
common screech owl	*Otus asio*	none	X	X	X	X	C / N	4 17
great-horned owl	*Bubo virginianus*	none	X	X	X	X	C / N,H	4 17
long-eared owl	*Asio otus*	none	X	X	X	X	C / N,H	4 17
American robin	*Turdus migratorius*	none		X	X	Early	A / N,F	4 7
yellow-bellied sapsucker	*Sphyrapicus varius*	none		Late	X	Early	C / N,F	14
pine siskin	*Carduelis pinus*	none	X	X	X	X	N / N,F	4 20
fox sparrow	*Passerella iliaca*	none	X	X		X	R / F	20 21
house sparrow	*Passer domesticus*	none	X	X	X	X	C / N,F	4 20

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	References
song sparrow	*Melospiza melodia*	none	X	X	X	X	R / N,F	4 22
white-throated sparrow	*Zonotrichia albicollis*	none	X	X	X	X	R / N,F	4 22
European starling	*Sturnus vulgaris*	none	X	X	X	X	C / N,F	4 23
chimney swift	*Chaetura pelagica*	none		X	X		C / F	4 42
scarlet tanager	*Piranga olivacea*	none		X	X		C / N,F	4
brown thrasher	*Toxostoma rufum*	none		X	X	Early	R / N,F	4 9
hermit thrush	*Catharus guttatus*	none	X	X	X	X	C / N,F	4 7
wood thrush	*Hylocichla mustelina*	none		X	X	Early	R / N,F	4 7
tufted titmouse	*Parus bicolor*	none	X	X	X	X	R / N,F	4 11
veery	*Catharus fuscescens*	none		Late	X		R / N,F	4 7
red-eyed vireo	*Vireo olivaceus*	none		Late	X		R / N,F	4 23
black-and-white warbler	*Mniotilta varia*	none		X	X		R / N,F	4 18
black-throated blue warbler	*Dendroica caerulescens*	none		Late	X	Early	C / N,F	18
pine warbler	*Dendroica pinus*	none		X	X	Early	C / N,F	4 19
prairie warbler	*Dendroica discolor*	none		Late	X	Early	C / N,F	4 19
yellow-rumped warbler	*Dendroica coronata*	none		X	X	Early	C / N,F	4 8
cedar waxwing	*Bombycilla cedrorum*	none		X	X	Early	R / N,F	4 23 32
whip-poor-will	*Caprimulgus vociferous*	special concern		Late	X		C / N	4 12
Eastern wood-peewee	*Contopus virens*	none		X	X		C / N,F	4 15
downy woodpecker	*Picoides pubescens*	none	X	X	X	X	A / N,F	4 14
hairy woodpecker	*Picoides villosus*	none	X	X	X	X	C / N,F	4 14
red-bellied woodpecker	*Melanerpes carolinus*	none	X	X	X	X	R / N,F	4 14
house wren	*Troglodytes aedon*	none		Late	X	Early	R / N,F	4 9
Mammals								
big-brown bat	*Eptesicus fuscus*	none	X	X	X	X	C / N,F	1 29
hoary bat	*Lasiurus borealis*	none			Late	Early	C / N,F	45
Keen's bat	*Myotis keenii*	none			X	Early	R / N	1 29
little-brown bat	*Myotis lucifugus*	none	X	X	X	X	C / N,F	1 29
red bat	*Lasiurus borealis*	none		Late	X	Early	C / N,F	1 29
Eastern pipistrelle	*Pipistrellus subflavus*	none		X	X	Early	R / N,F	1 29
silver-haired bat	*Lasionycteris noctivagans*	none			X		R / N,F	1 29
Eastern chipmunk	*Tamis striatus*	none	X	X	X	X	C / N,F	1 29
Eastern cottontail	*Sylvilagus floridanus*	none	X	X	X	X	C / N,F	1 29
white-tailed deer	*Odocoileus virginianus*	none	X	X	X	X	C / N,F	1 25 29
red fox	*Vulpes vulpes*	none	X	X	X	X	C / N,H	1 29
Eastern mole	*Scalopus aquaticus*	none	X	X	X	X	C / N,F	1 29
house mouse	*Mus musculus*	none	X	X	X	X	N / N,F	1 29
meadow-jumping mouse	*Zapus hudsonicus*	none	X	X	X	X	R / N,F	1 29

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	References
white-footed mouse	*Peromyscus leucopus*	none	X	X	X	X	C / N,F	1 29
Virginia opossum	*Didelphis virginiana*	none	X	X	X	X	C / N,F	1 29
racoon	*Procyon lotor*	none	X	X	X	X	C / N,F	1 29
masked shrew	*Sorex cinereus*	none	X	X	X	X	C / N,F	1 29
short-tailed shrew	Blarina breuicauda	none	X	X	X	X	A / N,F	1 29
striped skunk	Mephitis mephitis	none	X	X	X	X	N / N,F	1 29
Eastern gray squirrel	Sciurus carolinensis	none	X	X	X	X	C / N,F	1 29
southern-flying squirrel	Glaucimys volans	none	X	X	X	X	C / N,F	1 29
pine vole	Microtus pinetorum	none	X	X	X	X	C / N,F	1 29
long-tailed weasel	Mustela frenata	none	X	X	X	X	R / N,H	1 29
woodchuck	Marmota monax	none	X	X	X	X	R / N,F	1 29
Herptiles								
common gray treefrog	Hyla versicolor	none	X	X	X	X	C / N,F	33 37
red-backed salamander	Plethodon cinerus cinerus	none	X	X	X	X	R / N,F	34 36
Eastern tiger salamander	Ambystoma tigrinum tigrinum	endangered	X	X	X	X	R / F	36 38
marbled salamander	Ambystoma opacum	special concern	X	X	X	X	R / N,F	34 36 38
Eastern garter snake	Thamnophis sirtalis	none	X	X	X	X	C / N,F	38 40
eastern hognose snake	Heterodon platyrhinos	special concern	X	X	X	X	R / N,H	38
eastern milk snake	Lampropettis d. triangulum	none	X	X	X	X	C / N,F	38 39
Eastern spadefoot toad	Scaphiopus holbrooki	special concern	X	X	X	X	C / N,F	33
Fowler's toad	Bufo woodhousei fowleri	none	X	X	X	X	C / F	33 37
Eastern box turtle	Terrepene carolina	special concern	X	X	X	X	C / N,F	41

KEY:

Frequency:	*Activity:*
A- abundant	*N- nesting*
C- common	*H- hunting*
R- rare	*R- resting*
N- not expected	*F- foraging*

Dry Oak Forest Species - Inventory and Characteristics

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	Refernces
Birds								
gray catbird	*Dumetella carolinensis*	none		Late	X		R / N,F	4 9
black capped chickadee	*Parus atricapillus*	none	X	X	X	X	A / N,F	4 11
brown-headed cowbird	*Molothrus ater*	none		X	X	Early	A / N,F	4 6
brown creeper	*Certhia familiaris*	none		X	X	Early	C / N,F	4 9
American crow	*Corvus brachyrhynchos*	none	X	X	X	X	A / N,H	4 11
yellow-billed cuckoo	*Coccyzus americanus*	none		Late	X		R / N,F	4 12
house finch	*Carpodacus mexicanus*	none		X	X	X	A / N,F	4 20
common flicker	*Colaptus auratus*	none	X	X	X	X	C / N,F	4 14
Acadian flycatcher	*Empidonax virescens*	none		Late	X		N / N,F	4 15
great-crested flycatcher	*Myiarchus crinitus*	none		Late	X		C / N,F	4 15
common grackle	*Quiscalus quiscula*	none	X	X	X	X	C / N,F	4 6
ruffed grouse	*Bonasa umbellus*	none	X	X	X	X	C / N,F	4 8
broad-winged hawk	*Buteo platypterus*	none		X	X		R / N,H	4 16
Cooper's hawk	*Accipiter cooperii*	special concern		X	X		N / N,H	4 17
red-tailed hawk	*Buteo jamaicensis*	none	X	X	X	X	C / N,H	4 16
sharp-shinned hawk	*Accipiter striatus*	special concern	X	X	X	X	N / N,F	4 16
blue jay	*Cyanocitta cristatta*	none	X	X	X	X	A / N,F	4 10
Northern (dark-eyed) junco	*Junco hyemalis*	none		X	X	Early	R / N,F	4 21
Eastern kingbird	*Tyrannus tyrannus*	none		X	X	Early	C / N,F	4 15
golden-crowned kinglet	*Regulus satrapa*	none	X	X		X	R / N,H	4 7
ruby-crowned kinglet	*Regulus calendula*	none	X	X		X	R / N,H	4 7
purple martin	*Progne subis*	none		Late	X		R / N,F	4 15
Northern mockingbird	*Mimus polyglottos*	none	X	X	X	X	C / N,F	4 9
white-breasted nuthatch	*Sitta carolinensis*	none	X	X	X	X	A / N,F	4 9
northern oriole	*Icterus galbula*	none		Late	X		C / N,F	4 6
ovenbird	*Seiurus aurocapillus*	none		Late	X	Early	C / N,F	4 19
common screech owl	*Otus asio*	none	X	X	X	X	C / N	4 17
great-horned owl	*Bubo virginianus*	none	X	X	X	X	C / N,H	4 17
long-eared owl	*Asio otus*	none	X	X	X	X	C / N,H	4 17
American robin	*Turdus migratorius*	none		X	X	Early	A / N,F	4 7
yellow-bellied sapsucker	*Sphyrapicus varius*	none		Late	X	Early	C / N,F	14
fox sparrow	*Passerella iliaca*	none	X	X		X	R / F	20 21
house sparrow	*Passer domesticus*	none	X	X	X	X	C / N,F	4 20
song sparrow	*Melospiza melodia*	none	X	X	X	X	C / N,F	4 22

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	Refernces
European starling	*Sturnus vulgaris*	none	X	X	X	X	C / N,F	4 23
scarlet tanager	*Piranga olivacea*	none		X	X		C / N,F	4
brown thrasher	*Toxostoma rufum*	none		X	X	Early	R / N,F	4 9
hermit thrush	*Catharus guttatus*	none	X	X	X	X	C / N,F	4 7
wood thrush	*Hylocichla mustelina*	none		X	X	Early	C / N,F	4 7
tufted titmouse	*Parus bicolor*	none	X	X	X	X	C / N,F	4 11
veery	*Catharus fuscescens*	none		Late	X		R / N,F	4 7
red-eyed vireo	*Vireo olivaceus*	none		Late	X		C / N,F	4 23
yellow throated vireo	*Vireo flavifrons*	none		Late	X		R / N,F	4 23
black-and-white warbler	*Mniotilta varia*	none		X	X		C / N,F	4 18
black-throated blue warbler	*Dendroica caerulescens*	none		Late	X	Early	C / N,F	18
blue-winged warbler	*Vermivora pinus*	none		Late	X		R / N,F	4 14
cedar waxwing	*Bombycilla cedrorum*	none		X	X	Early	C / N,F	4 23 32
whip-poor-will	*Caprimulgus vociferous*	special concern		Late	X		C / N	4 12
Eastern wood-peewee	*Contopus virens*	none		X	X		C / N,F	4 15
downy woodpecker	*Picoides pubescens*	none	X	X	X	X	A / N,F	4 14
hairy woodpecker	*Picoides villosus*	none	X	X	X	X	C / N,F	4 14
red-bellied woodpecker	*Melanerpes carolinus*	none	X	X	X	X	C / N,F	4 14
house wren	*Troglodytes aedon*	none		Late	X	Early	R / N,F	4 9
Mammals								
big-brown bat	*Eptesicus fuscus*	none	X	X	X	X	C / N,F	1 29
hoary bat	*Lasiurus borealis*	none			Late	Early	C / N,F	45
Keen's bat	*Myotis keenii*	none			X	Early	R / N	1 29
little-brown bat	*Myotis lucifugus*	none	X	X	X	X	C / N,F	1 29
red bat	*Lasiurus borealis*	none		Late	X	Early	C / N,F	1 29
Eastern pipistrelle	*Pipistrellus subflavus*	none		X	X	Early	R / N,F	1 29
silver-haired bat	*Lasionycteris noctivagans*	none			X		R / N,F	1 29
Eastern chipmunk	*Tamis striatus*	none	X	X	X	X	C / N,F	1 29
Eastern cottontail	*Sylvilagus floridanus*	none	X	X	X	X	C / N,F	1 29
white-tailed deer	*Odocoileus virginianus*	none	X	X	X	X	C / N,F	1 25 29
red fox	*Vulpes vulpes*	none	X	X	X	X	C / N,H	1 29
Eastern mole	*Scalopus aquaticus*	none	X	X	X	X	C / N,F	1 29
house mouse	*Mus musculus*	none	X	X	X	X	N / N,F	1 29
meadow-jumping mouse	*Zapus hudsonicus*	none	X	X	X	X	R / N,F	1 29
white-footed mouse	*Peromyscus leucopus*	none	X	X	X	X	C / N,F	1 29
Virginia opossum	*Didelphis virginiana*	none	X	X	X	X	C / N,F	1 29
racoon	*Procyon lotor*	none	X	X	X	X	C / N,F	1 29
masked shrew	*Sorex cinereus*	none	X	X	X	X	C / N,F	1 29

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	Refernces
short-tailed shrew	*Blarina breuicauda*	none	X	X	X	X	A / N,F	1 29
striped skunk	*Mephitis mephitis*	none	X	X	X	X	N / N,F	1 29
Eastern gray squirrel	*Sciurus carolinensis*	none	X	X	X	X	A / N,F	1 29
southern-flying squirrel	*Glaucimys volans*	none	X	X	X	X	C / N,F	1 29
pine vole	*Microtus pinetorum*	none	X	X	X	X	C / N,F	1 29
long-tailed weasel	*Mustela frenata*	none	X	X	X	X	R / N,H	1 29
Herptiles								
spring peeper	Hyla crucifer	none	X	X	X	X	R / N,F	33 35 38
red-backed salamander	Plethodon cinerus cinerus	none	X	X	X	X	R / N,F	34 36
marbled salamander	Ambystoma opacum	special concern	X	X	X	X	R / N,F	34 36 38
Eastern garter snake	Thamnophis sirtalis	none	X	X	X	X	C / N,F	38 40
eastern milk snake	Lampropettis d. triangulum	none	X	X	X	X	C / N,F	38 39
Eastern spadefoot toad	Scaphiopus holbrooki	special concern	X	X	X	X	C / N,F	33

KEY:

Frequency:	Activity:
A- abundant	N- nesting
C- common	H- hunting
R- rare	R- resting
N- not expected	F- foraging

Terrestrial Cultural Species - Inventory and Characteristics

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	References
Birds								
red-winged blackbird	*Agelaius phoeniceus*	none		X	X	Early	C / N,F	4 6
Eastern bluebird	*Sialia sialis*	none		X	X	Early	R / N,F	4 7
common bobwhite	*Colinus virginianus*	none	X	X	X	X	C / N,F	4 8
indigo bunting	*Passerina cyanea*	none		Late	X	Early	N / F	4 20
Northern cardinal	*Cardinalis cardinalis*	none	X	X	X	X	C / N,F	4 20
gray catbird	*Dumetella carolinensis*	none		Late	X		C / F	4 9
brown-headed cowbird	*Molothrus ater*	none		X	X	Early	A / H	4 6
American crow	*Corvus brachyrhynchos*	none	X	X	X	X	A / N,H	4 11
mourning dove	*Zenaida macroura*	none	X	X	X	X	A / N,H	4 8
rock dove	*Columba livia*	none	X	X	X	X	A / N,F	4 8
great-crested flycatcher	*Myiarchus crinitus*	none		Late	X		C / N,F	4 15
common grackle	*Quiscalus quiscula*	none	X	X	X	X	A / N,F	4 6
Northern harrier	*Circus cyaneus*	threatened	X	X	X	X	R / H	4 16
Cooper's hawk	*Accipiter cooperii*	special concern		X	X		N / N,H	4 17
red-tailed hawk	*Buteo jamaicensis*	none	X	X	X	X	C / H	4 16
sharp-shinned hawk	*Accipiter striatus*	special concern	X	X	X	X	N / N,F	4 16
blue jay	*Cyanocitta cristatta*	none	X	X	X	X	A / N,F	4 10
American kestrel	*Falco sparverius*	none	X	X	X	X	C / N,H	4 17
killdeer	*Charadrius vociferus*	none		X	X	X	C / N,F	4 31 32
Eastern kingbird	*Tyrannus tyrannus*	none		X	X	Early	A / N,F	4 15
Eastern meadowlark	*Sturnella magna*	none		Late	X		C / N,F	4 6
Northern mockingbird	*Mimus polyglottos*	none	X	X	X	X	A / N,F	4 9
common nighthawk	*Chordeiles minor*	special concern		Late	X		R / N,F	4 12
barn owl	*Tyto alba*	none	X	X	X	X	R / N,H	4 17
great-horned owl	*Bubo virginianus*	none	X	X	X	X	R / N,H	4 17
ring-necked pheasant	*Phasianus colchicus*	none	X	X	X	X	C / N,F	4 8
black-bellied plover	*Pluvialis squatarola*	none		Early	X	Early	R / F	31 32
American robin	*Turdus migratorius*	none		X	X	Early	A / N,F	4 7
chipping sparrow	*Spizella passerina*	none	X	X	X	X	C / N,F	4 21
field sparrow	*Spizella pusilla*	none		X	X	X	R / N,F	4 21
grasshopper sparrow	*Ammodramus savannarum*	special concern		X	X	Early	R / N,F	4 20
house sparrow	*Passer domesticus*	none	X	X	X	X	A / N,F	4 20
Savannah sparrow	*Passerculus sandwichensis*	none		X	X	Early	R / N,F	4 21
song sparrow	*Melospiza melodia*	none	X	X	X	X	C / N,F	4 22

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	References
white-crowned sparrow	*Zonotrichia leucophrys*	none	X	X		X	C / F	22 32
European starling	*Sturnus vulgaris*	none	X	X	X	X	A / N,F	4 23
barn swallow	*Hirundo rustica*	none		Late	X		A / N,F	4 15
chimney swift	*Chaetura pelagica*	none		X	X		C / F	4 42
brown thrasher	*Toxostoma rufum*	none		X	X	Early	R / N,F	4 9
chestnut-sided warbler	*Dendroica pensylvanica*	none		Late	X		N / N,F	4 19
cedar waxwing	*Bombycilla cedrorum*	none		X	X	Early	C / N,F	4 23 32
whip-poor-will	*Caprimulgus vociferous*	special concern		Late	X		C / F	4 12
American woodcock	*Philhela minor*	none		X	X	X	R / N,F	4 30
red-headed woodpecker	*Melanerpes erythrocephalus*	special concern		X	X	Early	C / N,F	4 14
house wren	*Troglodytes aedon*	none		Late	X	Early	C / N,F	4 9
Mammals								
Eastern pipistrelle	*Pipistrellus subflavus*	none		X	X	Early	N / F	1 29
Eastern cottontail	*Sylvilagus floridanus*	none	X	X	X	X	A / N,F	1 29
white-tailed deer	*Odocoileus virginianus*	none	X	X	X	X	C / F	1 25 29
red fox	*Vulpes vulpes*	none	X	X	X	X	C / H	1 29
house mouse	*Mus musculus*	none	X	X	X	X	C / N,F	1 29
meadow-jumping mouse	*Zapus hudsonicus*	none	X	X	X	X	R / N,F	1 29
white-footed mouse	*Peromyscus leucopus*	none	X	X	X	X	C / N,F	1 29
Virginia opossum	*Didelphis virginiana*	none	X	X	X	X	C / N,F	1 29
racoon	*Procyon lotor*	none	X	X	X	X	C / F	1 29
black rat	*Rattus rattus*	none	X	X	X	X	N / N,F	1 29
Norway rat	*Rattus norvegicus*	none	X	X	X	X	C / N,F	1 29
least shrew	*Cryptotis parva*	none	X	X	X	X	N / N,F	1 29
striped skunk	*Mephitis mephitis*	none	X	X	X	X	N / N,F	1 29
pine vole	*Microtus pinetorum*	none	X	X	X	X	C / N,F	1 29
long-tailed weasel	*Mustela frenata*	none	X	X	X	X	R / N,H	1 29
Heptiles								
Eastern garter snake	*Thamnophis sirtalis*	none	X	X	X	X	C / N,F	38 40
eastern milk snake	*Lampropettis d. triangulum*	none	X	X	X	X	C / N,F	38 39
Fowler's toad	*Bufo woodhousei fowleri*	none	X	X	X	X	C / F	33 37

KEY:

Frequency:	*Activity:*
A- abundant	*N- nesting*
C- common	*H- hunting*
R- rare	*R- resting*
N- not expected	*F- foraging*

PROJECTION OF WILDLIFE ECOLOGICAL RESPONSE (POWER)

NELSON, POPE & VOORHIS, LLC, MICROCOMPUTER MODEL

SPECIES ADAPTABILITY

This portion of the appendix has been included to present the results of a computer program to identify "Species Adaptability." This list is another component of the program developed for use by Nelson, Pope & Voorhis, LLC to determine potential impacts of the proposed project on wildlife. In this application the "Adaptability" of the observed and expected species are shown. The "adaptability" as indicated in the table, refers to whether an individual species may potentially benefit from (+) a habitat change from natural to urban/suburban setting; or, be impacted (-), or remain constant (=), as a result of this change. These values are not intended to represent the dynamics of actual species on the subject site under post-development conditions. The column entitled “Comments” provides relevant information which was obtained from the literature, as regards special habits of the particular species, such as adaptability, nesting, food, etc. This column is particularly important in assessing the potential impacts to the species as a result of the proposed project. The preceding text considers the site specific aspects of the proposed development in regard to individual species. This appendix is included to provide the reader with the benefit of what the literature which was consulted in connection with the Habitat Suitability Model suggests, in terms of generalized species dynamics resulting from land use. References are the same as those cited in the previous Species List portion of the appendix.

Wooded Edge Species - Adaptability and Comments

Common Name	Scientific Name	Adapt	Comments	References
Birds				
red-winged blackbird	Agelaius phoeniceus	=	needs water	4 6
Eastern bluebird	Sialia sialis	-	found almost entirely in nesting boxes, extremely rare in wild	4 7
common bobwhite	Colinus virginianus	-	somewhat tolerant of humans during spring and summer months	4 8
indigo bunting	Passerina cyanea	-	inhabits open woodlands with dense thickets for cover	4 20
Northern cardinal	Cardinalis cardinalis	=	found around gardens, yards, parks	4 20
gray catbird	Dumetella carolinensis	=	abundant around parks, urban and suburban areas	4 9
black capped chickadee	Parus atricapillus	=	abundant around parks, urban and suburban areas	4 11
brown-headed cowbird	Molothrus ater	=	lays eggs in other bird's nests; some stay during winter	4 6
American crow	Corvus brachyrhynchos	=	extremely adaptable; omnivorous	4 11
black-billed cuckoo	Coccyzus erythropthalmus	-	avoids human activities	4 11
yellow-billed cuckoo	Coccyzus americanus	-	avoids heavy urban areas; prefers wooded open or edges for nests	4 12
mourning dove	Zenaida macroura	=	abundant around parks, urban and suburban areas	4 8
American goldfinch	Carduelis tristis	=	prefers diet of thistles and dandelions	4 20
house finch	Carpodacus mexicanus	+	nests almost entirely on buildings; considered a pest species	4 20
purple finch	Carpodacus purpureus	-	inhabits parks, suburban areas, and coniferous forests	4 20
common flicker	Colaptus auratus	=	abundant around parks, suburban and urban areas	4 14
great-crested flycatcher	Myiarchus crinitus	-	prefers deciduous forests and deciduous open woodland	4 15
least flycatcher	Empidonax minimus	=	prefers open areas and woodland borders; uncommon on Long Island	4 15
common grackle	Quiscalus quiscula	=	adapts well to urban and suburban habitats	4 6
ruffed grouse	Bonasa umbellus	-	prefers dense cover, thick woods; avoids humans	4 8
rose-breasted grosbeak	Pheucticus ludovicianus	=	mainly found on north shore	4 20
Northern harrier	Circus cyaneus	-	avoids humans; extremely protective of nests	4 16
Cooper's hawk	Accipiter cooperii	-	needs extensive woodland	4 17
red-tailed hawk	Buteo jamaicensis	-	needs 100 foot radius undisturbed area for nest	4 16
sharp-shinned hawk	Accipiter striatus	-	avoids humans; nests in heavily forested areas	4 16
blue jay	Cyanocitta cristatta	=	extremely adaptable to human activity and other stresses	4 10
Northern (dark-eyed) junco	Junco hyemalis	-	prefers forested area with elevation >300 meters; no LI atlas record	4 21
American kestrel	Falco sparverius	-	adaptable; prefers open areas and parks; will nest near humans	4 17
Eastern kingbird	Tyrannus tyrannus	=	very adaptable to human activities; prefers open areas	4 15
purple martin	Progne subis	-	found in parks, suburbs, cities and open woods; nests in nest boxes	4 15
Northern mockingbird	Mimus polyglottos	+	prefers to nest near humans	4 9
common nighthawk	Chordeiles minor	=	primarily a grassland specie; will nest in burnt areas and roofs	4 12
northern oriole	Icterus galbula	=	prefers deciduous woodland and shade trees	4 6
barn owl	Tyto alba	=	hunts in open areas, nests in man made structures and hollow trees	4 17
common screech owl	Otus asio	=	nocturnal; nests in hollow trees, abandoned buildings, nest boxes	4 17

Common Name	Scientific Name	Adapt	Comments	References
great-horned owl	Bubo virginianus	-	nocturnal; rare in wooded areas of less than 20 acres	4 17
ring-necked pheasant	Phasianus colchicus	-	needs fields with cover along edge	4 8
American redstart	Setophaga ruticilla	-	urbanization and agriculture have negative effects	4 19
American robin	Turdus migratorius	=	very adaptable; abundant in parks; nests in man-made structures	4 7
yellow-bellied sapsucker	Sphyrapicus varius	=	nests in tree cavity; found in parks, yards and gardens	14
chipping sparrow	Spizella passerina	+	abundant around man made structures	4 21
fox sparrow	Passerella iliaca	-	boreal species, winters here in edge, thickets, brushy areas	20 21
field sparrow	Spizella pusilla	-	associated with grasslands, fields and brushy wooded edges	4 21
house sparrow	Passer domesticus	+	prefers buildings, urban, suburban, gardens; considered a pest	4 20
song sparrow	Melospiza melodia	=	common to most habitats except deep forest, open field and marsh	4 22
white-crowned sparrow	Zonotrichia leucophrys	=	often found in suburban areas and city parks	22 32
white-throated sparrow	Zonotrichia albicollis	-	prefers brushy areas and thick undergrowth	4 22
European starling	Sturnus vulgaris	+	extremely adaptable to human activity; considered a pest	4 23
barn swallow	Hirundo rustica	+	nests almost entirely on buildings	4 15
chimney swift	Chaetura pelagica	+	nests in chimneys, with few exceptions	4 42
brown thrasher	Toxostoma rufum	=	common in parks and suburban areas, wooded edges and dry open areas	4 9
hermit thrush	Catharus guttatus	=	not common on Long Island; when present, prefers pine barrens	4 7
wood thrush	Hylocichla mustelina	=	prefers vacant wood (trees >40 feet); may adapt of wooded suburban	4 7
tufted titmouse	Parus bicolor	=	common in suburban areas	4 11
rufous-sided towhee	Pipilo erythrophthalmus	-	may be present year round on Long Island	4 20
red-eyed vireo	Vireo olivaceus	=	found in parks and suburban areas with shade trees and undergrowth	4 23
yellow throated vireo	Vireo flavifrons	-	sensitive to fragmentation and urbanization	4 23
black-and-white warbler	Mniotilta varia	-	builds nests under shrubs and/or trees	4 18
blue-winged warbler	Vermivora pinus	-	primarily abandoned and overgrown field, and thickets	4 14
chestnut-sided warbler	Dendroica pensylvanica	-	prefers first growth woods, with some open brush area	4 19
cedar waxwing	Bombycilla cedrorum	+	prefers open woodlands, orchards and residential areas	4 23 32
whip-poor-will	Caprimulgus vociferous	-	nocturnal; prefers open woods with adjacent fields	4 12
Eastern wood-peewee	Contopus virens	=	prefers suburban areas, parks and villages with shade trees	4 15
American woodcock	Philhela minor	-	prefers moist woodland and thicket near open fields	4 30
downy woodpecker	Picoides pubescens	=	found in parks and suburban areas	4 14
hairy woodpecker	Picoides villosus	=	found mainly in deciduous forests	4 14
red-bellied woodpecker	Melanerpes carolinus	=	prefers forest openings; mostly found on Long Island north shore	4 14
red-headed woodpecker	Melanerpes erythrocephalus	=	prefers open woodlands, parks and suburban areas	4 14
house wren	Troglodytes aedon	=	found in suburban areas and gardens; nests in crevices of buildings	4 9
Mammals				
big-brown bat	Eptesicus fuscus	+	roosts in structures; found throughout LI; hunts over water	1 29
hoary bat	Lasiurus borealis	=	roosts in trees, sometimes found in parks	45
Keen's bat	Myotis keenii	+	roosts in buildings, crevices and bark; more common on eastern LI	1 29

Common Name	Scientific Name	Adapt	Comments	References
little-brown bat	Myotis lucifugus	+	roosts in buildings and man made structures; hunts over water	1 29
red bat	Lasiurus borealis	-	feeds in marsh area; nests within 1000 yards of marsh in trees	1 29
Eastern pipistrelle	Pipistrellus subflavus	=	found near water in open woods, also found in buildings	1 29
silver-haired bat	Lasionycteris noctivagans	-	prefers wooded areas near water, primarily during summer months	1 29
Eastern chipmunk	Tamis striatus	=	prefers open woods, thickets, and rocky areas	1 29
Eastern cottontail	Sylvilagus floridanus	=	will adapt to suburban areas, if there is sufficient cover	1 29
white-tailed deer	Odocoileus virginianus	-	requires range of one-half square mile	1 25 29
red fox	Vulpes vulpes	-	builds den in wooded areas with loose-sandy soil and good drainage	1 29
Eastern mole	Scalopus aquaticus	=	tunnels underground	1 29
house mouse	Mus musculus	+	lives in association with man, not expected away from buildings	1 29
meadow-jumping mouse	Zapus hudsonicus	=	found around water in pine barrens; prefers open areas with grasses	1 29
white-footed mouse	Peromyscus leucopus	=	common to most all habitats; does not adapt well to human activity	1 29
Virginia opossum	Didelphis virginiana	=	common in suburban areas, as well as woods, marsh and coastal areas	1 29
racoon	Procyon lotor	+	nocturnal; very adaptive; found in urban and forest areas	1 29
black rat	Rattus rattus	=	lives in association with man, mainly city water front buildings	1 29
Norway rat	Rattus norvegicus	+	nocturnal; usually associated with human activity	1 29
least shrew	Cryptotis parva	-	not commonly documented on Long Island	1 29
short-tailed shrew	Blarina breuicauda	=	tunnels underground; abundant in a variety of habitats	1 29
striped skunk	Mephitis mephitis	=	prefers mixed wood & brush within 2 miles of water; not expected on LI	1 29
Eastern gray squirrel	Sciurus carolinensis	=	found in parks, urban and suburban areas; very adaptable	1 29
pine vole	Microtus pinetorum	=	tunnels underground; prefers sandy soil in woods and field; can swim	1 29
long-tailed weasel	Mustela frenata	-	prefers dense wood, but may appear in all land habitats near water	1 29
woodchuck	Marmota monax	-	appears primarily in scrub woods and brushy areas; not common on LI	1 29
Herptiles				
common gray treefrog	Hyla versicolor	-	prefer mossy trees near ponds	33 37
Eastern garter snake	Thamnophis sirtalis	=	occupies a variety of habitats	38 40
eastern milk snake	Lampropettis d. triangulum	=	occupies a variety of habitats	38 39

Pine Barrens Species - Adaptability and Comments

Common Name	Scientific Name	Adapt.	Comments	References
Birds				
common bobwhite	Colinus virginianus	-	somewhat tolerant of humans during spring and summer months	4 8
gray catbird	Dumetella carolinensis	=	abundant around parks, urban and suburban areas	4 9
black capped chickadee	Parus atricapillus	=	abundant around parks, urban and suburban areas	4 11
American crow	Corvus brachyrhynchos	=	extremely adaptable; omnivorous	4 11
house finch	Carpodacus mexicanus	+	nests almost entirely on buildings; considered a pest species	4 20
purple finch	Carpodacus purpureus	-	inhabits parks, suburban areas, and coniferous forests	4 20
common flicker	Colaptus auratus	=	abundant around parks, suburban and urban areas	4 14
common grackle	Quiscalus quiscula	=	adapts well to urban and suburban habitats	4 6
ruffed grouse	Bonasa umbellus	-	prefers dense cover, thick woods; avoids humans	4 8
broad-winged hawk	Buteo platypterus	-	avoids humans; nests only in dense forests; prefers to be near water	4 16
Cooper's hawk	Accipiter cooperii	-	needs extensive woodland	4 17
red-tailed hawk	Buteo jamaicensis	-	needs 100 foot radius undisturbed area for nest	4 16
sharp-shinned hawk	Accipiter striatus	-	avoids humans; nests in heavily forested areas	4 16
blue jay	Cyanocitta cristatta	=	extremely adaptable to human activity and other stresses	4 10
Northern (dark-eyed) junco	Junco hyemalis	-	prefers forested area with elevation >300 meters; no LI atlas record	4 21
Eastern kingbird	Tyrannus tyrannus	=	very adaptable to human activities; prefers open areas	4 15
golden-crowned kinglet	Regulus satrapa	-	prefers spruce vegetation; no atlas sightings on Long Island	4 7
ruby-crowned kinglet	Regulus calendula	-	occurs as non-breeding species; present during migration	4 7
white-breasted nuthatch	Sitta carolinensis	=	abundant in parks, urban and suburban areas	4 9
ovenbird	Seiurus aurocapillus	-	prefers open forest floor and woodlot greater than 35 acres	4 19
great-horned owl	Bubo virginianus	-	nocturnal; rare in wooded areas of less than 20 acres	4 17
long-eared owl	Asio otus	-	nocturnal; prefers dense forested areas near water	4 17
yellow-bellied sapsucker	Sphyrapicus varius	=	nests in tree cavity; found in parks, yards and gardens	14
pine siskin	Carduelis pinus	=	one atlas confirmed breeding record on Long Island	4 20
chipping sparrow	Spizella passerina	+	abundant around man made structures	4 21
fox sparrow	Passerella iliaca	-	boreal species, winters here in edge, thickets, brushy areas	20 21
song sparrow	Melospiza melodia	=	common to most habitats except deep forest, open field and marsh	4 22
European starling	Sturnus vulgaris	+	extremely adaptable to human activity; considered a pest	4 23
chimney swift	Chaetura pelagica	+	nests in chimneys, with few exceptions	4 42
scarlet tanager	Piranga olivacea	-	rare in wooded area of less than 50 acres; affected by fragmentation	4
brown thrasher	Toxostoma rufum	=	common in parks, suburban areas, wooded edges, dry open areas	4 9
hermit thrush	Catharus guttatus	=	not common on Long Island; when present, prefers pine barrens	4 7
wood thrush	Hylocichla mustelina	=	prefers vacant wood (trees >40 feet); may adapt of wooded suburban	4 7
pine warbler	Dendroica pinus	-	prefers pine forest; may appear in overgrown field	4 19
prairie warbler	Dendroica discolor	-	prefers scrub fields and open pine barrens habitat	4 19

Common Name	Scientific Name	Adapt.	Comments	References
yellow-rumped warbler	Dendroica coronata	-	prefers mixed and conifer forest; may be in yards	4 8
cedar waxwing	Bombycilla cedrorum	+	prefers open woodlands, orchards and residential areas	4 23 32
whip-poor-will	Caprimulgus vociferous	-	nocturnal; prefers open woods with adjacent fields	4 12
Eastern wood-peewee	Contopus virens	=	prefers suburban areas, parks and villages with shade trees	4 15
red-bellied woodpecker	Melanerpes carolinus	=	prefers forest openings; mostly found on Long Island north shore	4 14
house wren	Troglodytes aedon	=	found in suburban areas and gardens; nests in crevices of buildings	4 9
Mammals				
big-brown bat	Eptesicus fuscus	+	roosts in structures; found throughout LI; hunts over water	1 29
hoary bat	Lasiurus borealis	=	roosts in trees, sometimes found in parks	45
Keen's bat	Myotis keenii	+	roosts in buildings, crevices and bark; more common on eastern LI	1 29
little-brown bat	Myotis lucifugus	+	roosts in buildings and man made structures; hunts over water	1 29
red bat	Lasiurus borealis	-	feeds in marsh area; nests within 1000 yards of marsh in trees	1 29
Eastern pipistrelle	Pipistrellus subflavus	=	found near water in open woods, also found in buildings	1 29
silver-haired bat	Lasionycteris noctivagans	-	prefers wooded areas near water, primarily during summer months	1 29
Eastern chipmunk	Tamis striatus	=	prefers open woods, thickets, and rocky areas	1 29
Eastern cottontail	Sylvilagus floridanus	=	will adapt to suburban areas, if there is sufficient cover	1 29
white-tailed deer	Odocoileus virginianus	-	requires range of one-half square mile	1 25 29
red fox	Vulpes vulpes	-	builds den in wooded areas with loose-sandy soil and good drainage	1 29
Eastern mole	Scalopus aquaticus	=	tunnels underground	1 29
house mouse	Mus musculus	+	lives in association with man, not expected away from buildings	1 29
meadow-jumping mouse	Zapus hudsonicus	=	found around water in pine barrens; prefers open areas with grasses	1 29
white-footed mouse	Peromyscus leucopus	=	common to most all habitats; does not adapt well to human activity	1 29
Virginia opossum	Didelphis virginiana	=	common in suburban areas, woods, marsh and coastal areas	1 29
racoon	Procyon lotor	+	nocturnal; very adaptive; found in urban and forest areas	1 29
masked shrew	Sorex cinereus	=	tunnels underground; common in wood and wet habitats	1 29
short-tailed shrew	Blarina breuicauda	=	tunnels underground; abundant in a variety of habitats	1 29
striped skunk	Mephitis mephitis	=	prefers mixed wood & brush within 2 miles of water; not expected on LI	1 29
Eastern gray squirrel	Sciurus carolinensis	=	found in parks, urban and suburban areas; very adaptable	1 29
southern-flying squirrel	Glaucimys volans	-	common in deep mixed, deciduous and coniferous woods	1 29
pine vole	Microtus pinetorum	=	tunnels underground; prefers sandy soil in woods and field; can swim	1 29
long-tailed weasel	Mustela frenata	-	prefers dense wood, but may appear in all land habitats near water	1 29
woodchuck	Marmota monax	-	appears primarily in scrub woods and brushy areas; not common on LI	1 29
Herptiles				
common gray treefrog	Hyla versicolor	-	prefer mossy trees near ponds	33 37
red-backed salamander	Plethodon cinerus cinerus	-	terrestrial, prevelent in moist situations	34 36
Eastern tiger salamander	Ambystoma tigrinum tigrinum	-	needs fishless pond or vernal pond with 500' vacant radius to breed	36 38
marbled salamander	Ambystoma opacum	=	moist to sandy areas; lays eggs in fall in low spots wet by rain	34 36 38
Eastern garter snake	Thamnophis sirtalis	=	occupies a variety of habitats	38 40

Common Name	Scientific Name	Adapt.	Comments	References
eastern hognose snake	Heterodon platyrhinos	=	sandy soil and sunny roadside; feeds on herptiles and insects	38
eastern milk snake	Lampropettis d. triangulum	=	occupies a variety of habitats	38 39
Eastern spadefoot toad	Scaphiopus holbrooki	-	nocturnal; burrows in sandy soil; eats insects, worms; gardens, etc.	33
Fowler's toad	Bufo woodhousei fowleri	-	found in suburban areas, gardens; breeds in shallow permanent ponds	33 37
Eastern box turtle	Terrepene carolina	-	terrestrial based species	41

Pine Oak Species - Adaptability and Comments

Common Name	Scientific Name	Adapt.	Comments	References
Birds				
gray catbird	Dumetella carolinensis	=	abundant around parks, urban and suburban areas	4 9
black capped chickadee	Parus atricapillus	=	abundant around parks, urban and suburban areas	4 11
brown-headed cowbird	Molothrus ater	=	lays eggs in other bird's nests; some stay during winter	4 6
brown creeper	Certhia familiaris	-	prefers predominantly deciduous wooded areas	4 9
American crow	Corvus brachyrhynchos	=	extremely adaptable; omnivorous	4 11
yellow-billed cuckoo	Coccyzus americanus	-	avoids heavy urban areas; prefers wooded open or edges for nests	4 12
mourning dove	Zenaida macroura	=	abundant around parks, urban and suburban areas	4 8
house finch	Carpodacus mexicanus	+	nests almost entirely on buildings; considered a pest species	4 20
purple finch	Carpodacus purpureus	-	inhabits parks, suburban areas, and coniferous forests	4 20
common flicker	Colaptus auratus	=	abundant around parks, suburban and urban areas	4 14
great-crested flycatcher	Myiarchus crinitus	-	prefers deciduous forests and deciduous open woodland	4 15
common grackle	Quiscalus quiscula	=	adapts well to urban and suburban habitats	4 6
ruffed grouse	Bonasa umbellus	-	prefers dense cover, thick woods; avoids humans	4 8
broad-winged hawk	Buteo platypterus	-	avoids humans; nests only in dense forests; prefers to be near water	4 16
Cooper's hawk	Accipiter cooperii	-	needs extensive woodland	4 17
red-tailed hawk	Buteo jamaicensis	-	needs 100 foot radius undisturbed area for nest	4 16
sharp-shinned hawk	Accipiter striatus	-	avoids humans; nests in heavily forested areas	4 16
blue jay	Cyanocitta cristatta	=	extremely adaptable to human activity and other stresses	4 10
Northern (dark-eyed) junco	Junco hyemalis	-	prefers forested area with elevation >300 meters; no LI atlas record	4 21
Eastern kingbird	Tyrannus tyrannus	=	very adaptable to human activities; prefers open areas	4 15
golden-crowned kinglet	Regulus satrapa	-	prefers spruce vegetation; no atlas sightings on Long Island	4 7
Northern mockingbird	Mimus polyglottos	+	prefers to nest near humans	4 9
white-breasted nuthatch	Sitta carolinensis	=	abundant in parks, urban and suburban areas	4 9
northern oriole	Icterus galbula	=	prefers deciduous woodland and shade trees	4 6
ovenbird	Seiurus aurocapillus	-	prefers open forest floor and woodlot greater than 35 acres	4 19
common screech owl	Otus asio	=	nocturnal; nests in hollow trees, abandoned buildings, nest boxes	4 17
great-horned owl	Bubo virginianus	-	nocturnal; rare in wooded areas of less than 20 acres	4 17
long-eared owl	Asio otus	-	nocturnal; prefers dense forested areas near water	4 17
American robin	Turdus migratorius	=	very adaptable; abundant in parks; nests in man-made structures	4 7
yellow-bellied sapsucker	Sphyrapicus varius	=	nests in tree cavity; found in parks, yards and gardens	14
pine siskin	Carduelis pinus	=	one atlas confirmed breeding record on Long Island	4 20
fox sparrow	Passerella iliaca	-	boreal species, winters here in edge, thickets, brushy areas	20 21
house sparrow	Passer domesticus	+	prefers buildings, urban, suburban, gardens; considered a pest	4 20
song sparrow	Melospiza melodia	=	common to most habitats except deep forest, open field and marsh	4 22
white-throated sparrow	Zonotrichia albicollis	-	prefers brushy areas and thick undergrowth	4 22

Common Name	Scientific Name	Adapt.	Comments	References
European starling	Sturnus vulgaris	+	extremely adaptable to human activity; considered a pest	4 23
chimney swift	Chaetura pelagica	+	nests in chimneys, with few exceptions	4 42
scarlet tanager	Piranga olivacea	-	rare in wooded area of less than 50 acres; affected by fragmentation	4
brown thrasher	Toxostoma rufum	=	common in parks, suburban areas, wooded edges, dry open areas	4 9
hermit thrush	Catharus guttatus	=	not common on Long Island; when present, prefers pine barrens	4 7
wood thrush	Hylocichla mustelina	=	prefers vacant wood (trees >40 feet); may adapt of wooded suburban	4 7
tufted titmouse	Parus bicolor	=	common in suburban areas	4 11
veery	Catharus fuscescens	-	prefers damp forest with undergrowth; affected by fragmentation	4 7
red-eyed vireo	Vireo olivaceus	=	found in parks and suburban areas with shade trees and undergrowth	4 23
black-and-white warbler	Mniotilta varia	-	builds nests under shrubs and/or trees	4 18
black-throated blue warbler	Dendroica caerulescens	=	migratory, large range; forest interior specie; can adapt to suburb	18
pine warbler	Dendroica pinus	-	prefers pine forest; may appear in overgrown field	4 19
prairie warbler	Dendroica discolor	-	prefers scrub fields and open pine barrens habitat	4 19
yellow-rumped warbler	Dendroica coronata	-	prefers mixed and conifer forest; may be in yards	4 8
cedar waxwing	Bombycilla cedrorum	+	prefers open woodlands, orchards and residential areas	4 23 32
whip-poor-will	Caprimulgus vociferous	-	nocturnal; prefers open woods with adjacent fields	4 12
Eastern wood-peewee	Contopus virens	=	prefers suburban areas, parks and villages with shade trees	4 15
downy woodpecker	Picoides pubescens	=	found in parks and suburban areas	4 14
hairy woodpecker	Picoides villosus	=	found mainly in deciduous forests	4 14
red-bellied woodpecker	Melanerpes carolinus	=	prefers forest openings; mostly found on Long Island north shore	4 14
house wren	Troglodytes aedon	=	found in suburban areas and gardens; nests in crevices of buildings	4 9
Mammals				
big-brown bat	Eptesicus fuscus	+	roosts in structures; found throughout LI; hunts over water	1 29
hoary bat	Lasiurus borealis	=	roosts in trees, sometimes found in parks	45
Keen's bat	Myotis keenii	+	roosts in buildings, crevices and bark; more common on eastern LI	1 29
little-brown bat	Myotis lucifugus	+	roosts in buildings and man made structures; hunts over water	1 29
red bat	Lasiurus borealis	-	feeds in marsh area; nests within 1000 yards of marsh in trees	1 29
Eastern pipistrelle	Pipistrellus subflavus	=	found near water in open woods, also found in buildings	1 29
silver-haired bat	Lasionycteris noctivagans	-	prefers wooded areas near water, primarily during summer months	1 29
Eastern chipmunk	Tamis striatus	=	prefers open woods, thickets, and rocky areas	1 29
Eastern cottontail	Sylvilagus floridanus	=	will adapt to suburban areas, if there is sufficient cover	1 29
white-tailed deer	Odocoileus virginianus	-	requires range of one-half square mile	1 25 29
red fox	Vulpes vulpes	-	builds den in wooded areas with loose-sandy soil and good drainage	1 29
Eastern mole	Scalopus aquaticus	=	tunnels underground	1 29
house mouse	Mus musculus	+	lives in association with man, not expected away from buildings	1 29
meadow-jumping mouse	Zapus hudsonicus	=	found around water in pine barrens; prefers open areas with grasses	1 29
white-footed mouse	Peromyscus leucopus	=	common to most all habitats; does not adapt well to human activity	1 29
Virginia opossum	Didelphis virginiana	=	common in suburban areas, woods, marsh and coastal areas	1 29

Common Name	Scientific Name	Adapt.	Comments	References
racoon	Procyon lotor	+	nocturnal; very adaptive; found in urban and forest areas	1 29
masked shrew	Sorex cinereus	=	tunnels underground; common in wood and wet habitats	1 29
short-tailed shrew	Blarina breuicauda	=	tunnels underground; abundant in a variety of habitats	1 29
striped skunk	Mephitis mephitis	=	prefers mixed wood & brush within 2 miles of water; not expected on LI	1 29
Eastern gray squirrel	Sciurus carolinensis	=	found in parks, urban and suburban areas; very adaptable	1 29
southern-flying squirrel	Glaucimys volans	-	common in deep mixed, deciduous and coniferous woods	1 29
pine vole	Microtus pinetorum	=	tunnels underground; prefers sandy soil in woods and field; can swim	1 29
long-tailed weasel	Mustela frenata	-	prefers dense wood, but may appear in all land habitats near water	1 29
woodchuck	Marmota monax	-	appears primarily in scrub woods and brushy areas; not common on LI	1 29
Herptiles				
common gray treefrog	Hyla versicolor	-	prefer mossy trees near ponds	33 37
red-backed salamander	Plethodon cinerus cinerus	-	terrestrial, prevelent in moist situations	34 36
Eastern tiger salamander	Ambystoma tigrinum tigrinum	-	needs fishless pond or vernal pond with 500' vacant radius to breed	36 38
marbled salamander	Ambystoma opacum	=	moist to sandy areas; lays eggs in fall in low spots wet by rain	34 36 38
Eastern garter snake	Thamnophis sirtalis	=	occupies a variety of habitats	38 40
eastern hognose snake	Heterodon platyrhinos	=	sandy soil and sunny roadside; feeds on herptiles and insects	38
eastern milk snake	Lampropettis d. triangulum	=	occupies a variety of habitats	38 39
Eastern spadefoot toad	Scaphiopus holbrooki	-	nocturnal; burrows in sandy soil; eats insects, worms; gardens, etc.	33
Fowler's toad	Bufo woodhousei fowleri	-	found in suburban areas, gardens; breeds in shallow permanent ponds	33 37
Eastern box turtle	Terrepene carolina	-	terrestrial based species	41

Dry Oak Forest Species - Adaptability and Comments

Common Name	Scientific Name	Adapt.	Comments	References
Birds				
Acadian flycatcher	Empidonax virescens	-	prefers cool, damp, mature hardwood forests	4 15
American crow	Corvus brachyrhynchos	=	extremely adaptable; omnivorous	4 11
American robin	Turdus migratorius	=	very adaptable; abundant in parks; nests in man-made structures	4 7
black capped chickadee	Parus atricapillus	=	abundant around parks, urban and suburban areas	4 11
black-and-white warbler	Mniotilta varia	-	builds nests under shrubs and/or trees	4 18
black-throated blue warbler	Dendroica caerulescens	=	migratory, large range; forest interior specie; can adapt to suburb	18
blue jay	Cyanocitta cristatta	=	extremely adaptable to human activity and other stresses	4 10
blue-winged warbler	Vermivora pinus	-	primarily abandoned and overgrown field, and thickets	4 14
broad-winged hawk	Buteo platypterus	-	avoids humans; nests only in dense forests; prefers to be near water	4 16
brown creeper	Certhia familiaris	-	prefers predominantly deciduous wooded areas	4 9
brown thrasher	Toxostoma rufum	=	common in parks, suburban areas, wooded edges, dry open areas	4 9
brown-headed cowbird	Molothrus ater	=	lays eggs in other bird's nests; some stay during winter	4 6
cedar waxwing	Bombycilla cedrorum	+	prefers open woodlands, orchards and residential areas	4 23 32
common flicker	Colaptus auratus	=	abundant around parks, suburban and urban areas	4 14
common grackle	Quiscalus quiscula	=	adapts well to urban and suburban habitats	4 6
common screech owl	Otus asio	=	nocturnal; nests in hollow trees, abandoned buildings, nest boxes	4 17
Cooper's hawk	Accipiter cooperii	-	needs extensive woodland	4 17
downy woodpecker	Picoides pubescens	=	found in parks and suburban areas	4 14
Eastern kingbird	Tyrannus tyrannus	=	very adaptable to human activities; prefers open areas	4 15
Eastern wood-peewee	Contopus virens	=	prefers suburban areas, parks and villages with shade trees	4 15
European starling	Sturnus vulgaris	+	extremely adaptable to human activity; considered a pest	4 23
fox sparrow	Passerella iliaca	-	boreal species, winters here in edge, thickets, brushy areas	20 21
golden-crowned kinglet	Regulus satrapa	-	prefers spruce vegetation; no atlas sightings on Long Island	4 7
gray catbird	Dumetella carolinensis	=	abundant around parks, urban and suburban areas	4 9
great-crested flycatcher	Myiarchus crinitus	-	prefers deciduous forests and deciduous open woodland	4 15
great-horned owl	Bubo virginianus	-	nocturnal; rare in wooded areas of less than 20 acres	4 17
hairy woodpecker	Picoides villosus	=	found mainly in deciduous forests	4 14
hermit thrush	Catharus guttatus	=	not common on Long Island; when present, prefers pine barrens	4 7
house finch	Carpodacus mexicanus	+	nests almost entirely on buildings; considered a pest species	4 20
house sparrow	Passer domesticus	+	prefers buildings, urban, suburban, gardens; considered a pest	4 20
house wren	Troglodytes aedon	=	found in suburban areas and gardens; nests in crevices of buildings	4 9
long-eared owl	Asio otus	-	nocturnal; prefers dense forested areas near water	4 17
Northern (dark-eyed) junco	Junco hyemalis	-	prefers forested area with elevation >300 meters; no LI atlas record	4 21
Northern mockingbird	Mimus polyglottos	+	prefers to nest near humans	4 9
northern oriole	Icterus galbula	=	prefers deciduous woodland and shade trees	4 6

Common Name	Scientific Name	Adapt.	Comments	References
ovenbird	Seiurus aurocapillus	-	prefers open forest floor and woodlot greater than 35 acres	4 19
purple martin	Progne subis	-	found in parks, suburbs, cities and open woods; nests in nest boxes	4 15
red-bellied woodpecker	Melanerpes carolinus	=	prefers forest openings; mostly found on Long Island north shore	4 14
red-eyed vireo	Vireo olivaceus	=	found in parks and suburban areas with shade trees and undergrowth	4 23
red-tailed hawk	Buteo jamaicensis	-	needs 100 foot radius undisturbed area for nest	4 16
ruby-crowned kinglet	Regulus calendula	-	occurs as non-breeding species; present during migration	4 7
ruffed grouse	Bonasa umbellus	-	prefers dense cover, thick woods; avoids humans	4 8
scarlet tanager	Piranga olivacea	-	rare in wooded area of less than 50 acres; affected by fragmentation	4
sharp-shinned hawk	Accipiter striatus	-	avoids humans; nests in heavily forested areas	4 16
song sparrow	Melospiza melodia	=	common to most habitats except deep forest, open field and marsh	4 22
tufted titmouse	Parus bicolor	=	common in suburban areas	4 11
veery	Catharus fuscescens	-	prefers damp forest with undergrowth; affected by fragmentation	4 7
whip-poor-will	Caprimulgus vociferous	-	nocturnal; prefers open woods with adjacent fields	4 12
white-breasted nuthatch	Sitta carolinensis	=	abundant in parks, urban and suburban areas	4 9
wood thrush	Hylocichla mustelina	=	prefers vacant wood (trees >40 feet); may adapt of wooded suburban	4 7
yellow throated vireo	Vireo flavifrons	-	sensitive to fragmentation and urbanization	4 23
yellow-bellied sapsucker	Sphyrapicus varius	=	nests in tree cavity; found in parks, yards and gardens	14
yellow-billed cuckoo	Coccyzus americanus	-	avoids heavy urban areas; prefers wooded open or edges for nests	4 12
Mammals				
big-brown bat	Eptesicus fuscus	+	roosts in structures; found throughout LI; hunts over water	1 29
hoary bat	Lasiurus borealis	=	roosts in trees, sometimes found in parks	45
Keen's bat	Myotis keenii	+	roosts in buildings, crevices and bark; more common on eastern LI	1 29
little-brown bat	Myotis lucifugus	+	roosts in buildings and man made structures; hunts over water	1 29
red bat	Lasiurus borealis	-	feeds in marsh area; nests within 1000 yards of marsh in trees	1 29
Eastern pipistrelle	Pipistrellus subflavus	=	found near water in open woods, also found in buildings	1 29
silver-haired bat	Lasionycteris noctivagans	-	prefers wooded areas near water, primarily during summer months	1 29
Eastern chipmunk	Tamis striatus	=	prefers open woods, thickets, and rocky areas	1 29
Eastern cottontail	Sylvilagus floridanus	=	will adapt to suburban areas, if there is sufficient cover	1 29
white-tailed deer	Odocoileus virginianus	-	requires range of one-half square mile	1 25 29
red fox	Vulpes vulpes	-	builds den in wooded areas with loose-sandy soil and good drainage	1 29
Eastern mole	Scalopus aquaticus	=	tunnels underground	1 29
house mouse	Mus musculus	+	lives in association with man, not expected away from buildings	1 29
meadow-jumping mouse	Zapus hudsonicus	=	found around water in pine barrens; prefers open areas with grasses	1 29
white-footed mouse	Peromyscus leucopus	=	common to most all habitats; does not adapt well to human activity	1 29
Virginia opossum	Didelphis virginiana	=	common in suburban areas, woods, marsh and coastal areas	1 29
racoon	Procyon lotor	+	nocturnal; very adaptive; found in urban and forest areas	1 29
masked shrew	Sorex cinereus	=	tunnels underground; common in wood and wet habitats	1 29
short-tailed shrew	Blarina breuicauda	=	tunnels underground; abundant in a variety of habitats	1 29

Common Name	Scientific Name	Adapt.	Comments	References
striped skunk	Mephitis mephitis	=	prefers mixed wood & brush within 2 miles of water; not expected on LI	1 29
Eastern gray squirrel	Sciurus carolinensis	=	found in parks, urban and suburban areas; very adaptable	1 29
southern-flying squirrel	Glaucimys volans	-	common in deep mixed, deciduous and coniferous woods	1 29
pine vole	Microtus pinetorum	=	tunnels underground; prefers sandy soil in woods and field; can swim	1 29
long-tailed weasel	Mustela frenata	-	prefers dense wood, but may appear in all land habitats near water	1 29
Herptiles				
spring peeper	Hyla crucifer	=	prefers pools/marsh near woodland; found high in trees in summer	33 35 38
red-backed salamander	Plethodon cinerus cinerus	-	terrestrial, prevelent in moist situations	34 36
marbled salamander	Ambystoma opacum	=	moist to sandy areas; lays eggs in fall in low spots wet by rain	34 36 38
Eastern garter snake	Thamnophis sirtalis	=	occupies a variety of habitats	38 40
eastern milk snake	Lampropettis d. triangulum	=	occupies a variety of habitats	38 39
Eastern spadefoot toad	Scaphiopus holbrooki	-	nocturnal; burrows in sandy soil; eats insects, worms; gardens, etc.	33

Terrestrial Cultural Species : Adaptability

Common Name	Scientific Name	Adapt.	Comments	References
Birds				
red-winged blackbird	Agelaius phoeniceus	=	needs water	4 6
Eastern bluebird	Sialia sialis	-	found almost entirely in nesting boxes, extremely rare in wild	4 7
common bobwhite	Colinus virginianus	-	somewhat tolerant of humans during spring and summer months	4 8
indigo bunting	Passerina cyanea	-	inhabits open woodlands with dense thickets for cover	4 20
Northern cardinal	Cardinalis cardinalis	=	found around gardens, yards, parks	4 20
gray catbird	Dumetella carolinensis	=	abundant around parks, urban and suburban areas	4 9
brown-headed cowbird	Molothrus ater	=	lays eggs in other bird's nests; some stay during winter	4 6
American crow	Corvus brachyrhynchos	=	extremely adaptable; omnivorous	4 11
mourning dove	Zenaida macroura	=	abundant around parks, urban and suburban areas	4 8
rock dove	Columba livia	+	nests almost entirely on buildings; considered a pest species	4 8
great-crested flycatcher	Myiarchus crinitus	-	prefers deciduous forests and deciduous open woodland	4 15
common grackle	Quiscalus quiscula	=	adapts well to urban and suburban habitats	4 6
Northern harrier	Circus cyaneus	-	avoids humans; extremely protective of nests	4 16
Cooper's hawk	Accipiter cooperii	-	needs extensive woodland	4 17
red-tailed hawk	Buteo jamaicensis	-	needs 100 foot radius undisturbed area for nest	4 16
sharp-shinned hawk	Accipiter striatus	-	avoids humans; nests in heavily forested areas	4 16
blue jay	Cyanocitta cristatta	=	extremely adaptable to human activity and other stresses	4 10
American kestrel	Falco sparverius	-	adaptable; prefers open areas and parks; will nest near humans	4 17
killdeer	Charadrius vociferus	=	grassland species prefers coastal and wet areas with sparse growth	4 31 32
Eastern kingbird	Tyrannus tyrannus	=	very adaptable to human activities; prefers open areas	4 15
Eastern meadowlark	Sturnella magna	-	found in marshes during winter months	4 6
Northern mockingbird	Mimus polyglottos	+	prefers to nest near humans	4 9
common nighthawk	Chordeiles minor	=	primarily a grassland specie; will nest in burnt areas and roofs	4 12
barn owl	Tyto alba	=	hunts in open areas, nests in man made structures and hollow trees	4 17
great-horned owl	Bubo virginianus	-	nocturnal; rare in wooded areas of less than 20 acres	4 17
ring-necked pheasant	Phasianus colchicus	-	needs fields with cover along edge	4 8
black-bellied plover	Pluvialis squatarola	-	non-breeder on LI; may forage during summer, occasionally winter	31 32
American robin	Turdus migratorius	=	very adaptable; abundant in parks; nests in man-made structures	4 7
chipping sparrow	Spizella passerina	+	abundant around man made structures	4 21
field sparrow	Spizella pusilla	-	associated with grasslands, fields and brushy wooded edges	4 21
grasshopper sparrow	Ammodramus savannarum	-	requires grasslands	4 20
house sparrow	Passer domesticus	+	prefers buildings, urban, suburban, gardens; considered a pest	4 20
Savannah sparrow	Passerculus sandwichensis	-	found in shore areas; not expected inland	4 21
song sparrow	Melospiza melodia	=	common to most habitats except deep forest, open field and marsh	4 22
white-crowned sparrow	Zonotrichia leucophrys	=	often found in suburban areas and city parks	22 32

Common Name	Scientific Name	Adapt.	Comments	References
European starling	Sturnus vulgaris	+	extremely adaptable to human activity; considered a pest	4 23
barn swallow	Hirundo rustica	+	nests almost entirely on buildings	4 15
chimney swift	Chaetura pelagica	+	nests in chimneys, with few exceptions	4 42
brown thrasher	Toxostoma rufum	=	common in parks, suburban areas, wooded edges, dry open areas	4 9
chestnut-sided warbler	Dendroica pensylvanica	-	prefers first growth woods, with some open brush area	4 19
cedar waxwing	Bombycilla cedrorum	+	prefers open woodlands, orchards and residential areas	4 23 32
whip-poor-will	Caprimulgus vociferous	-	nocturnal; prefers open woods with adjacent fields	4 12
American woodcock	Philhela minor	-	prefers moist woodland and thicket near open fields	4 30
red-headed woodpecker	Melanerpes erythrocephalus	=	prefers open woodlands, parks and suburban areas	4 14
house wren	Troglodytes aedon	=	found in suburban areas and gardens; nests in crevices of buildings	4 9
Mammals				
Eastern pipistrelle	Pipistrellus subflavus	=	found near water in open woods, also found in buildings	1 29
Eastern cottontail	Sylvilagus floridanus	=	will adapt to suburban areas, if there is sufficient cover	1 29
white-tailed deer	Odocoileus virginianus	-	requires range of one-half square mile	1 25 29
red fox	Vulpes vulpes	-	builds den in wooded areas with loose-sandy soil and good drainage	1 29
house mouse	Mus musculus	+	lives in association with man, not expected away from buildings	1 29
meadow-jumping mouse	Zapus hudsonicus	=	found around water in pine barrens; prefers open areas with grasses	1 29
white-footed mouse	Peromyscus leucopus	=	common to most all habitats; does not adapt well to human activity	1 29
Virginia opossum	Didelphis virginiana	=	common in suburban areas, woods, marsh and coastal areas	1 29
racoon	Procyon lotor	+	nocturnal; very adaptive; found in urban and forest areas	1 29
black rat	Rattus rattus	=	lives in association with man, mainly city water front buildings	1 29
Norway rat	Rattus norvegicus	+	nocturnal; usually associated with human activity	1 29
least shrew	Cryptotis parva	-	not commonly documented on Long Island	1 29
striped skunk	Mephitis mephitis	=	prefers mixed wood & brush within 2 miles of water; not expected on LI	1 29
pine vole	Microtus pinetorum	=	tunnels underground; prefers sandy soil in woods and field; can swim	1 29
long-tailed weasel	Mustela frenata	-	prefers dense wood, but may appear in all land habitats near water	1 29
Herptiles				
Eastern garter snake	Thamnophis sirtalis	=	occupies a variety of habitats	38 40
eastern milk snake	Lampropettis d. triangulum	=	occupies a variety of habitats	38 39
Fowler's toad	Bufo woodhousei fowleri	-	found in suburban areas, gardens; breeds in shallow permanent ponds	33 37

APPENDIX H

BREEDING BIRD SURVEY

NYSDEC Breeding Bird Atlas
Atlas Block 6651B
2000-2005

Common Name	Scientific Name	Behavior Code	Date	NY Legal Status
Wood Duck	Aix sponsa	X1	5/4/2004	Game Species
Mallard	Anas platyrhynchos	X1	5/4/2004	Game Species
Northern Bobwhite	Colinus virginianus	T2	6/30/2002	Game Species
Osprey	Pandion haliaetus	NE	6/2/2002	Protected-Special Concern
Red-tailed Hawk	Buteo jamaicensis	X1	6/23/2002	Protected
Killdeer	Charadrius vociferus	P2	6/2/2002	Protected
Rock Pigeon	Columba livia	ON	6/8/2003	Unprotected
Mourning Dove	Zenaida macroura	FL	6/30/2002	Protected
Chimney Swift	Chaetura pelagica	X1	5/14/2004	Protected
Downy Woodpecker	Picoides pubescens	T2	5/14/2004	Protected
Hairy Woodpecker	Picoides villosus	X1	4/24/2004	Protected
Northern Flicker	Colaptes auratus	P2	6/30/2002	Protected
Eastern Wood-Pewee	Contopus virens	D2	6/23/2002	Protected
Great Crested Flycatcher	Myiarchus crinitus	D2	5/14/2004	Protected
Eastern Kingbird	Tyrannus tyrannus	X1	6/8/2003	Protected
Blue Jay	Cyanocitta cristata	P2	6/2/2002	Protected
American Crow	Corvus brachyrhynchos	P2	6/2/2002	Game Species
Fish Crow	Corvus ossifragus	X1	4/24/2004	Protected
Black-capped Chickadee	Poecile atricapillus	FY	6/23/2002	Protected
Tufted Titmouse	Baeolophus bicolor	P2	6/23/2002	Protected
Carolina Wren	Thryothorus ludovicianus	T2	4/24/2004	Protected
House Wren	Troglodytes aedon	NY	6/23/2002	Protected
American Robin	Turdus migratorius	NE	6/2/2002	Protected
Gray Catbird	Dumetella carolinensis	P2	6/2/2002	Protected
Northern Mockingbird	Mimus polyglottos	FL	6/4/2004	Protected
Brown Thrasher	Toxostoma rufum	FY	6/30/2002	Protected
European Starling	Sturnus vulgaris	NY	6/30/2002	Unprotected
Cedar Waxwing	Bombycilla cedrorum	X1	6/2/2002	Protected
Blue-winged Warbler	Vermivora pinus	X1	6/2/2002	Protected
Yellow Warbler	Dendroica petechia	T2	5/14/2004	Protected
Pine Warbler	Dendroica pinus	T2	6/2/2002	Protected
Prairie Warbler	Dendroica discolor	T2	6/2/2002	Protected
Common Yellowthroat	Geothlypis trichas	T2	6/23/2002	Protected
Eastern Towhee	Pipilo erythrophthalmus	FL	6/23/2002	Protected
Chipping Sparrow	Spizella passerina	NE	6/23/2002	Protected
Field Sparrow	Spizella pusilla	S2	6/30/2002	Protected
Song Sparrow	Melospiza melodia	T2	4/24/2004	Protected
Northern Cardinal	Cardinalis cardinalis	P2	6/2/2002	Protected
Red-winged Blackbird	Agelaius phoeniceus	T2	4/24/2004	Protected
Common Grackle	Quiscalus quiscula	FY	6/4/2004	Protected
Brown-headed Cowbird	Molothrus ater	NE	6/30/2002	Protected
Baltimore Oriole	Icterus galbula	UN	4/24/2004	Protected
American Goldfinch	Spinus tristis	NE	6/30/2002	Protected
House Sparrow	Passer domesticus	ON	6/8/2003	Unprotected

Block 6651B Summary	
Total Species:	44
Possible:	9
Probable:	19
Confirmed:	16

Current Date: 1/23/2018
Source: http://www.dec.state.ny.us/cfmx/extapps/bba/

APPENDIX I

NEW YORK STATE NATURAL HERITAGE PROGRAM CORRESPONDENCE AND SANDPLAIN GERARDIA MANAGEMENT PLAN

Appendix I-1
New York State Natural Heritage Program Correspondence

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, New York Natural Heritage Program
625 Broadway, Fifth Floor, Albany, NY 12233-4757
P: (518) 402-8935 | F: (518) 402-8925
www.dec.ny.gov

September 7, 2017

Hannah Emouna
Nelson, Pope & Voorhis
572 Walt Whitman Road
Melville, NY 11747

Re: Crest Town Center PDD & PRCHC Change of Zone
County: Suffolk Town/City: Brookhaven

Dear Ms. Emouna:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

Enclosed is a report of rare plants that our database indicates occur at the project site or in its vicinity.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our database. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

Our database is continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the NYS DEC Region 1 Office, Division of Environmental Permits, as listed at www.dec.ny.gov/about/39381.html.

Sincerely,

Colleen Lutz
Assistant Biologist
New York Natural Heritage Program

1094

The following rare plants have been documented at the project site, or in its vicinity.

We recommend that potential onsite and offsite impacts of the proposed project on these species be addressed as part of any environmental assessment or review conducted as part of the planning, permitting and approval process, such as reviews conducted under SEQR. Field surveys of the project site may be necessary to determine the status of a species at the site, particularly for sites that are currently undeveloped and may still contain suitable habitat. Final requirements of the project to avoid, minimize, or mitigate potential impacts are determined by the lead permitting agency or the government body approving the project.

The following plants are listed as Endangered or Threatened by New York State, and/or are considered rare by the New York Natural Heritage Program, and so are a vulnerable natural resource of conservation concern.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*HERITAGE CONSERVATION STATUS*
Vascular Plants			
Flax-leaf Whitetop	*Sericocarpus linifolius*	Threatened	Imperiled in NYS
Northwest portion of project site, southeast of intersection of Station Road (Bellport Avenue) and Woodside Avenue (on tax parcel no. 0200-872-02-15), 1990-09-20: The plants are on a roadside at the edge of the pine barrens and farmer's field, with sparse vegetation.			416
Sandplain Wild Flax	*Linum intercursum*	Threatened	Imperiled in NYS
Along Station Road (Bellport Avenue), about 1/3 mile north of project site, 1996-08-08: The plants are on a pine barrens roadside with very sparse vegetation, dominated by grasses and legumes.			2033
Field Beadgrass	*Paspalum laeve*	Endangered	Critically Imperiled in NYS
Along Sunrise Highway west of Exit 56, about 1/3 mile southwest of project site, 2003-09-12: This is a mowed roadside that has been mowed all the way to the wooded border. In the past there was a strip 4-5 feet wide that was left natural between the woods and mowed portion.			11032

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the rare animals and plants in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, from NatureServe Explorer at www.natureserve.org/explorer, and from USDA's Plants Database at http://plants.usda.gov/index.html (for plants).

Appendix I-2
Sandplain Gerardia Management Plan

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING
www.nelsonpopevoorhis.com

SANDPLAIN GERARDIA (AGALINIS ACUTA) PRELIMINARY MANAGEMENT PLAN
CREST TOWN CENTER CHANGE OF ZONE
Bellport Station Road, Bellport, NY

Suffolk County, New York

September 7, 2018

Prepared By: *Nelson, Pope & Voorhis, LLC*
572 Walt Whitman Road
Melville, New York 11747
Contact: Charles Voorhis, CEP, AICP
(631)427-5665

Prepared For: *Crest Bellport, LLC*
1201 NYS Route 112
Port Jefferson Station, New York 11776
Contact: Enrico Scarda, Principal
(631) 582-4800

For Submission to: *Brookhaven Town Board*
One Independence Hill
Farmingville, New York 11738
Contact: Tullio Bertoli, APA, AICP, LEED
Commissioner of Department of Planning and Development
(631) 451-6400

1.0 Introduction

During the site inspections conducted on September 15, 2017 and October 20, 2017 special care was taken to identify any rare threatened or endangered species on site. During site investigations a single population consisting of two individuals of sandplain gerardia (*Agalinis acuta*) was found on site.

Sandplain gerardia is listed as endangered both within NYS and federally. The species is located approximately 5 feet from the western property boundary in an area of previous disturbance. The area where this species was encountered is undergoing natural succession and the canopy is filling in. Sapling pitch pine and oak species are beginning to crowd the area and heath species are filling in the understory. As reported by New York Natural Heritage Program, Sandplain Gerardia thrives in disturbed habitats associated with maritime grasslands[1]. As such, the species is not expected to

[1] NYNHP Conservation Guide http://acris.nynhp.org/report.php?id=9350

naturally persist onsite due to competition for resources as the habitat changes and the natural succession of the area occurs. The proposed project includes management of the Sandplain Gerardia population onsite to ensure the long-term persistence of the population.

2.0 Existing Conditions

The predominant cover type can be categorized as pitch pine-oak forest as defined by the classification system developed by the NYSDEC **(Edinger *et al.*, 2013).** A system of dirt trails bisects the woodland in the northernmost reached of the site. The entirety of the site can be classified as Pitch Pine-Oak Forest.

Edinger (2013), defines pitch pine-oak forest as:

> "*a mixed forest that typically occurs on well-drained, sandy soils of glacial outwash plains or moraines; it also occurs on thin, rocky soils of ridgetops. The dominant trees are pitch pine (Pinus rigida) mixed with one or more of the following oaks: scarlet oak (Quercus coccinea), white oak (Q. alba), red oak (Q. rubra), or black oak (Q. velutina). The relative proportions of pines and oaks are quite variable within this community type. Examples can range from having widely spaced pines that are often emergent above the oak canopy to a nearly pure stand of pines with only a few widely spaced oak trees. The shrub layer is well-developed with scattered clumps of scrub oak (Quercus ilicifolia) and a nearly continuous cover of low heath shrubs such as lowbush blueberries (Vaccinium pallidum, V. angustifolium) and black huckleberry (Gaylussacia baccata). The herbaceous layer is relatively sparse; characteristic species are bracken fern (Pteridium aquilinum var. latiusculum), wintergreen (Gaultheria procumbens), and Pennsylvania sedge (Carex pensylvanica).*"

The 52.95 acres of pitch pine-oak forest dominates the property. Dominant canopy species observed include pitch pine (*Pinus rigida*) and white oak (*Quercus alba*). Other species found on site include scrub oak (*Quercus ilicifolia*), black cherry (*Prunus serotina*), blackjack oak (*Quercus marilandica*), bigtooth aspen (*Populus grandidentata)*, lowbush blueberry (*Vaccinium pallidum*), spotted wintergreen (*Chimaphila maculata*), sweetfern (*Comptonia peregrina*) and Pennsylvania sedge (*Carex pensylvanica*). It should be noted that the overall quality of the forest found on the edges of the subject site is diminished due to the significant presence of invasive species (particularly mugwort and autumn olive) located along the disturbed edges of the habitat patch.

During site investigations a single population consisting of two individuals of sandplain gerardia (*Agalinis acuta*) was found on site. The species is located approximately 5 feet from the western property boundary in an area of previous disturbance. The area where this species was encountered is undergoing natural succession and the canopy is filling in. Sapling pitch pine and oak species are beginning to crowd the area and heath species are filling in the understory. Typically, a grassland species that thrives in disturbed areas, the onsite conditions are not ideal for the persistence of this population. It is anticipated that within a few growing seasons the canopy will close in and the population will be lost due to competition for resources.

3.0 Sandplain Gerardia Management

The Sandplain Gerardia population onsite is located approximately 5 feet from the western property boundary. The proposed project preserves this area wihtin an 8-foot wide naturalized buffer to be managed for the persistence of the Sandplain Gerardia population by the future owner.

All trees, saplings and shrubs will be cut and removed from the buffer area. Any herbaceous invasive species will be hand pulled. No herbicides or fertilizers will be utilized within the buffer area. The buffer will be seeded with a grass seed mix composed of native grasses and perennials. Species to be included in the seed mix are common associates of Sandplain Gerardia and include big bluestem (*Andropogon gerardii*), little bluestem (*Schizachryium scoparium*), Indian grass (*Sorghastrum nutans*), switchgrass (*Panicum virgatum*), common milkweed *(Asclepias incarnata*), gray goldenrod (*Solidago nemoralis*) and grass-leaved goldenrod (*Euthamia gramnifolia*). These species have been selected as they are common associates of Sandplain Gerardia and are typical species associated with grassland habitats within the region.

The buffer will be actively managed by the future land owner to maintain the open grassland that Sandplain Gerardia require to thrive, in accordance with covenants and restrictions, an easement or other instrument that is acceptable to the Town. All invasive species will be hand-pulled bi-annually (twice per year). Maintenance mowing will occur every other year and will occur in late fall after the first frost when the Sandplain Gerardia has seeded from the previous growing season. Mowing is required to ensure the grassland buffer remains open and to provide disturbed areas to facilitate the growth and expansion of the Sandplain Gerardia population. As reported by NYNHP and the US Fish and Wildlife Service, this species relies on disturbance to limit resource competition and responds well to mowing[2]. Anecdotal reports indicated that the species has been found disturbed areas previously scraped by bulldozers[3] many Any shrubs will be hand cut and removed from the buffer.

4.0 Conclusion

The endangered Sandplain Gerardia found on the project site will be conserved within an 8-foot wide managed buffer area. Management of the area will include the removal off all trees, saplings and shrubs to create an open canopy. The buffer will be seeded with a mix of native grasses and perennials that are commonly found within the habitats associated with Sandplain Gerardia. All invasive species, saplings and shrubs will be hand pulled or hand cut twice a year to ensure the canopy remains open. Maintenance cutting will occur every other year and will occur in late fall after the first frost when the Sandplain Gerardia has seeded from the previous growing season. Mowing is required to ensure the grassland buffer does not become overcrowded and to provide disturbance necessary to facilitate the growth and expansion of the Sandplain Gerardia population onsite.

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[2] US Fish and Wildlife Service
https://www.fws.gov/endangered/map/ESA_success_stories/NY/NY_story1/index.html
[3] NYNHP Conservation Guide http://acris.nynhp.org/report.php?id=9350,

APPENDIX J

PDD AND NH-H CHANGE OF ZONE APPLICATION CONCEPT, RATIONAL AND QUANTITATIVE SUPPLEMENT

CREST TOWN CENTER
PDD AND NH-H CHANGE OF ZONE APPLICATION
Town of Brookhaven, New York

Concept, Rationale and Quantitative Analysis Supplement

NP&V No. 16212

Prepared for:	Crest Bellport, LLC 1201 NYS Route 112 Port Jefferson Station, New York 11776 Attn: Enrico Scarda, Principal Phone: 631-582-4800
Prepared by:	Nelson, Pope & Voorhis, LLC 572 Walt Whitman Road Melville, New York 11747 Contact: Charles J. Voorhis, CEP, AICP Phone: 631-427-5665
For Submission to:	Town of Brookhaven, Town Clerk and Department of Planning, Environment & Land Management 1 Independence Hill Farmingdale, New York 11738
Date:	April 3, 2017 *September 6, 2018*

1.0 Introduction and Purpose

The Crest Town Center project seeks two changes of zone under a single change of zone application. One change of zone would provide a mixed-use development under the Town's Planned Development District (PDD) legislation for 48.46 acres of the site, and the other change of zone, to the NH-H Health Facility District, would occupy the remaining 4.49 acres of the property, for an Assisted Living Facility (ALF). This Concept, Rationale and Quantitative Analysis Supplement is intended to accompany the Change of Zone application submitted to the Town Board for the proposed Crest Town Center project.

The subject property is 52.95 acres in size and is located generally east of Station Road, south of Woodside Avenue and north of Sunrise Highway in the hamlet of North Bellport, Town of Brookhaven, Suffolk County, New York. The site is more specifically described by its Suffolk County Tax Map numbers: District 0200; Section 872; Block 02; Lots 15 & 16; and District 0200; Section 899; Block 03; Lots 2.2, 2.3, 2.4 & 7. The entire site is currently zoned L-Industrial-1 district under the Town of Brookhaven Zoning Code.

The proposed PDD would occupy 48.46 acres of the project site and would provide the following uses: multi-family residences (60 two-bedroom, 80 one-bedroom, and 20 studio apartments), mini-storage space (119,600 SF), retail space (33,600 SF), restaurant space (4,500 SF), planned retirement community (106 two-bedroom units), market (15,000 SF), two gazebos (166 SF each), and two recreation buildings (2,400 SF each). The remaining 4.49 acres of the overall property would be rezoned to NH-H, to provide for a 130-bed ALF, in a single three-story building with a footprint of 39,116 SF. A Land Division from the Planning Board will be necessary at the time of Site Plan review, to separate the NH-H-zoned area from the PDD.

The proposed project is estimated to require a conservative total potable water supply of 95,614gpd for domestic/operational purposes, as well as an average irrigation demand of 24,265gpd (based on total irrigation per year average over the course of a year) for a total average demand of 119,879gpd. The applicant proposes to connect to a nearby Suffolk County sewer district, Suffolk County Sewer District (SCSD) #7. A connection will be made to an existing manhole west of Bellport Station Road. The applicant proposes an out-of-district connection to the Twelve Pines Sewage Treatment Plant (STP), located on the south side of Woodside Avenue, 300 feet west of Pine Gate and 850 feet east of Sipp Avenue. This STP is part of SCSD #7. Contact has been made with the Suffolk County Sewer Agency (SCSA), an agency within the Suffolk County Department of Public Works (SCDPW), and the project team has been advised that treatment capacity currently exists at this facility, subject to an application/approval for Conceptual Certification to be submitted to SCSA and full wastewater engineering and SCDHS/SCDPW applications to be completed at the time of site plan review. Currently, the Twelve Pines STP has a design flow of 0.83 million gallons per day and an average annual operating flow of 0.5 mgd indicating a residual capacity of 0.33 mgd. Since the proposed action is expected to generate a maximum of 95,614 gpd or 0.0956 mgd, considerable excess capacity is available to serve the project.

The Town Zoning Code, Chapter 85, Section (§)85-739 establishes procedures for submission and evaluation of a PDD application. This document provides the required elements as contained in §85-739 A. (1) and (2), specifically including a written statement containing a text description and a PDD Master Plan proposal and the concept, rationale and quantitative analysis required under the procedures for a PDD.

2.0 Concept and Rationale of the Proposed Plan

In conformance with §85-739 A. (1), this section includes a written statement and text description of the PDD Master Plan proposal as well as the concept and rationale of the proposed plan.

> Application to Town Board. An application for change of zone shall be submitted to the Town Clerk, in accordance with the application procedures and requirements of Article VII, Town Board Amendments, of this chapter. Such application shall also contain a written statement containing a text description and a PDD Master Plan proposal, including:

(1) A. The concept and rationale of the proposed plan, including an explanation of how its approval would result in a development pattern which minimizes environmental impacts, creates an integrated, mixed-use and pedestrian-friendly site or otherwise achieves the legislative intent, purposes and goals of this article.

Approval of the requested PDD would provide for development that has been designed, configured and sized in consideration of both the opportunities and the limitations of the subject site and of the vicinity. Given the longitudinal configuration of the property, the uses are arranged on the site so that the multi-family residential use is buffered from the higher level of activity associated with the commercial portion to the greatest degree practicable, by separating these two uses with the industrial portion (mini-storage) and a vegetated buffer. It is noteworthy that the specific industrial use proposed is a mini-storage facility, which is associated with minimal noise and low levels of activity.

Additionally, there would be a north-south roadway constructed from Woodside Avenue (which forms the site's northern boundary) to the north side of the Sunrise Highway North Service Road along the site's southern boundary. The roadway will serve two-way traffic within the development but will only allow cars travelling along Woodside Avenue to turn right into the property. From this roadway, east-west connection roads/drives provide access to each of the uses, as well as an access road westerly to Bellport Station Road. An access road will also be provided from the proposed PRC in the northern portion of the property to South Village Drive. Thus, traffic will be distributed within the development and multiple opportunities for access to the site will be provided; this will disperse traffic to adjoining roadways. The site has convenient access to and from Sunrise Highway. Woodside Avenue is accessible to the north, by means of South Village Drive, for local destinations and Bellport Station Road is to the west. As a result, there is safe and convenient access to the site.

The commercial portion of the PDD has been located at the southern end of the site, abutting the major transportation corridor in the vicinity (Sunrise Highway). Access to the commercial uses is proposed to be provided from proposed interior roadways with access to Bellport Station Road and Sunrise Highway. Additionally, the industrial portion of the PDD has been placed north of the commercial area and is proposed to be accessible via Sunrise Highway or Bellport Station Road with the use of proposed roadways for interior circulation. Further, the specific industrial use proposed is a low intensity level mini-storage facility which is not generally considered to be a significant activity center. The multi-family portion of the proposed PDD would be placed north of the commercial and industrial uses in the center portion of the property, adjacent to other residential areas and undeveloped open spaces. Finally, the assisted living facility and planned retirement community would be located in the northernmost section of the property.

The ZBA Plot Plan shows that the proposed PDD would provide for an integrated mixed-use development wherein residents would have access to retail/services uses, restaurant use and mini-storage facilities, all within walking distance. Employees of the commercial uses would also have readily available access to commercial uses and eating places, and the businesses would profit from a local customer base. It is expected that the uses proposed will be designed under a common architectural theme, and with street furniture (e.g., streetlights, kiosks, trash receptacles,

benches/seating areas, fountains, greenswards, sidewalks and pedestrian street crossings, etc.) reflecting appropriate, local building characteristics. As such, the proposed Crest Town Center PDD would achieve the Town's intent, purposes and goals for establishment of a PDD, as codified in §85-739 A. (1).

Pine Barrens Credits

As noted above, the 16.00 acre proposed multi-family housing portion of the PDD would be developed with 160 apartments, at a density of 10 units/acre. As per Town Zoning Code §85-280 A., for a multi-family residential project within the Primary Zone (as acknowledged by the Town), this is the maximum density allowed for this acreage. The attached **Primary Zone Analysis** Figure indicates a 1,320-foot radius surrounding the project site and the existing and proposed pedestrian amenities. Per Town Code §85-273, a site must be within 1,320 feet of a major arterial roadway (at least 5,000 average daily vehicles trips per day) to be considered within a primary zone. According to the New York State Department of Transportation Traffic Data Viewer, the project site is located within 1,320 feet of numerous major arterial roadways including Station Road (AADT of 12,285 vehicles), Woodside Avenue (AADT of 5,424 vehicles) and Sunrise Highway (AADT of 60,556 vehicles). Additionally, the project site can be classified within a primary zone because it is within 1,320 feet of the Bellport Outlets commercial node. The project site is served by segments of sidewalks along Station Road and the applicant is proposing to construct additional pedestrian amenities within the site and along Station Road for the site entrance to the intersection of Station Road and Farber Drive as shown in the attached figure and Suffolk County Bus Routes 68 and 7B along Station Road, Woodside Avenue and Village Drive.

Redemption of Pine Barrens credits is required for the proposed multi-family and PRC uses. The proposed development includes a 16 acre MF parcel to be developed with 160 apartments. Per §85-280 C. (1) (a), the Base Density of this site, now industrially-zoned, is 48 units. Per Town Code Article XIII (§85-167B), the applicant shall receive a density bonus over the base density of the site (not the proposed density) of 10%. Therefore, the base density of the project site is 53 units, due to an additional 5 units from the affordable and workforce housing density bonus. Town Zoning Code Article XV (§85-330) requires that, for the MF units, at least 10% are to be designated as affordable or workforce housing units. The proposed PDD will comply with this requirement, by setting aside 10% (or 16 units) as affordable units. Based on Town Zoning Code §85-280 D.(1)(d) affordable units are not subject to Pine Barrens credit redemption. As a result, the MF units represent a density increase of 91 units. The density increase of 91 units was calculated by taking the proposed MF density of 160 units minus the base density (53 units), minus the number of affordable/workforce units proposed (16 units), since these components are not subject to the credit calculation. As a result, under §85-280 D. (1) (a), the number of PBCs to be redeemed is calculated as 20% of the density increase (91 units), or 18.2 PBCs.

The computation of PBCs for the Multifamily Component is summarized as follows:

Table 1
PBC Calculation for
Multifamily Development Component

Parameter	Value	Unit
Size of Site	16.00	acres
Zoning Base Density	3	units/acre
Base Density (units)	48	units
Affordable Density Bonus factor of 10%	5	units
Total Base Density	53	units
MF Units Proposed	160	units
MF Base Density	53	units
MF Affordable Units factor of 10%	16	units
MF Density Increase Over Base Density	91	units
MF Pine Barrens Credit Factor of 20%	18.2	PBCs

The PRC Component of the project also requires redemption of Pine Barrens credits, in addition to the MF portion described above. The 18.20-acre PRC portion of the site is proposed to be developed with 106 PRC units. The maximum permitted density in a Primary Zone is 8 units per acre per §85-298 A, which results in a total permitted density of 145 units. The base density of the PRC as per §85-298 D(1)(a) is 55 units. According to Town Zoning Code §85-298 E. (1)(e), no Pine Barrens Credits redemption is required for affordable or workforce housing units. The project as proposed includes 10affordable PRC units. As a result, a density increase of 41 units is proposed for the PRC component, which was calculated by taking the proposed PRC density of 106 units minus the base density (55 units), and minus the affordable/workforce units proposed (10 units), since these components are not subject to PBC redemption. Per §85-298 E. (1)(a), the PBC redemption is calculated as 15% of the total number of units above base density (41 units), for a total of 6.15 PBCs.

Table 2
PBC Calculation for
PRC Development Component

Parameter	Value	Unit
Size of Site	18.2	acres
Zoning Base Density	3	units/acre
Base Density (units)	55	units
PRC Units Proposed	106	units
PRC Base Density	55	units
PRC Affordable Units	10	units
PRC Density Increase Over Base Density	41	units
PRC Pine Barrens Credit Factor of 15%	6.15	PBCs

Total PBCs

The total PBCs required for the proposed development density is therefore 24.35 credits. The L-1, and J-2 zonings are all equal in base density as compared with the existing L-1 zoning of the site. The NH-H district requires a Change of Zone, but is not subject to credit redemption. However, each change in zoning (other than the MF and PRC which are subject to PBCs) is subject to the Land Use Intensification Mitigation Fee pursuant to §85-82 of the Zoning Code which is discussed in **Section 4.0 below**.

3.0 Quantitative Analysis for the Entire Site

In conformance with §85-739 A. (2), this section includes a quantitative analysis of the entire site including certain detailed elements on the plan.

(2) A quantitative analysis for the entire site which indicates the area of the existing zoning district(s), the preserved land areas, the floor space of the various types of proposed commercial, industrial and other nonresidential uses, the proposed number of residential dwelling units by size and type, and the area and percentages of the site proposed for each type of proposed land use as regulated below in §85-740.

- Area of the existing zoning district: *L-Industrial-1 (52.95 acres)*
- Areas of the proposed zoning districts: *PDD (48.46 acres) & NH-H (4.49 acres)*

Proposed Coverages

- Area of natural/revegetated land: *11.21 acres (21.18%)*
- Area of landscaping/turf: *15.33 acres (28.95%)*
- Area in Buildings: *9.55 acres (18.04%)*
- Area in Pavement: *15.12 acres (28.56%)*
- Area in Walks: *1.73 acres (3.27%)*

Proposed Floor Spaces

- Floor space of the proposed commercial use: *53,100 SF (comprised of 33,600 SF of retail space, 4,500 SF of restaurant space, and 15,000 SF of market)*
- Floor space of the proposed industrial use: *119,600 SF (mini-storage facility)*
- Proposed number of multi-family units (by size and type): *20 studio apartments (750 SF each), 80 one-bedroom apartments (900 SF each), and 60 two-bedroom apartments (1,150 SF each)*
- Proposed planned retirement community (PRC) facility: *106 two-bedroom units (2,500 SF each)*
- Proposed number of assisted living facility units (by size and type): *130 beds (three-story building with 39,116 SF footprint)*

Proposed Land Uses

- Area and percentage proposed for commercial use: *11.19 acres; 21.13% of site*
- Area and percentage proposed for industrial use: *3.07 acres; 5.80% of site*
- Area and percentage proposed for multi-family residential use*: 16.00 acres; 30.22% of site*
- Area and percentage proposed for planned retirement community: *18.20 acres: 34.37% of site*
- Area and percentage of site proposed for assisted living facility use: *4.49 acres; 8.48% of site*

4.0 Analysis of Land Use Intensification

Under §85-741 B., the non-residential PDD (i.e., the industrial and the commercial/retail portions) and the NH-H components of the proposed project are subject to land use intensification requirements, calculated as follows:

> …the land use intensification percentage of the less restrictive zone in which the proposed use is located (the use proposed by the PDD master plan as listed and permitted in §85-740) minus the land use intensification percentage of the more restrictive zone (the underlying zoning district prior to the time of Town Board PDD approval).

The schedule of use intensities is outlined in §85-82 C., which indicates that the existing L-1 zoning has a use intensity of 70%. NH-H has the same use intensity (70%), and therefore, is not subject to an intensification fee. The other requested zoning district, J Business 2, has a use intensity of 85%. The intensification fee, based on §85-82 D., is as follows: "The land use intensification mitigation fee shall be calculated as follows: $750 per one-percent increase in land use intensification per acre or part thereof, in conformance with the percentages above." As a result, the J-Business-2 will result in a fee of $125,887.50.

5.0 Summary and Conclusion

This document has been prepared to accompany the Crest Town Center change of zone application, submitted to the Town Board. As required by the Town Zoning Code §85-739, it presents a brief narrative explaining whether and how the PDD portion of the overall project would conform to the standards for such a district. It also contains a summary of the general zoning characteristics of the entire property (i.e., including those of the proposed NH-H change of zone).

The development will also provide benefits commensurate with the requested zoning. Specifically, 24.35 PBCs or dollar equivalent payment to the Joseph Macchia Environmental Preservation Capital Reserve Fund for the increased intensity of use under the MF and PRC portions of the project. The use intensification of the proposed J-2 zoning will result in a contribution of $125,887.50 to the Joseph Macchia Environmental Preservation Capital Reserve Fund. Monies placed in this fund are available to purchase open space for preservation, thus providing a significant environmental benefit.

Overall, the PDD is appropriate sighted on land that is not in any special district and is not proximate to wetlands or other unique resources. Development of the site will establish a permanent use on the site and will generate tax revenue and jobs, as well as housing (both affordable and market) for individuals, families and senior citizens, as well as higher levels of care provided by an assisted living facility. As a result, this project will serve social, economic and environmental needs of the Town and region while enabling the project sponsor to realize a return on investment in the property.

As can be seen upon review of this document, the proposed Crest Town Center change of zone will provide a set of uses that will, collectively, achieve the Town's intent, purposes and goals for establishment of a PDD, as codified in §85-739 A. (1).

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

PRIMARY ZONE ANALYSIS WITH PEDESTRIAN AMENITIES

Source: NYS Orthoimagery Program 2016; ESRI World Transportation
Scale: 1 inch = 700 feet

N

Crest Town Center
Bellport

COZ and PDD Application

APPENDIX K

SUFFOLK COUNTY SEWER AGENCY APPLICATION

C. Conceptual Certification – Connection/Construction Agreement

CREST TOWN CENTER **BR-1723**

This project is a proposed mixed-use residential and commercial development consisting of 160 residential units, 106 Planned Retirement Community units, a 130-bed assisted living facility, a 119,600 SF mini-storage warehouse facility, a health club (33,600 SF), a 4,500 SF restaurant (180 restaurant seats and 10 bar seats) and 15,000 SF of retail/market/convenience space.

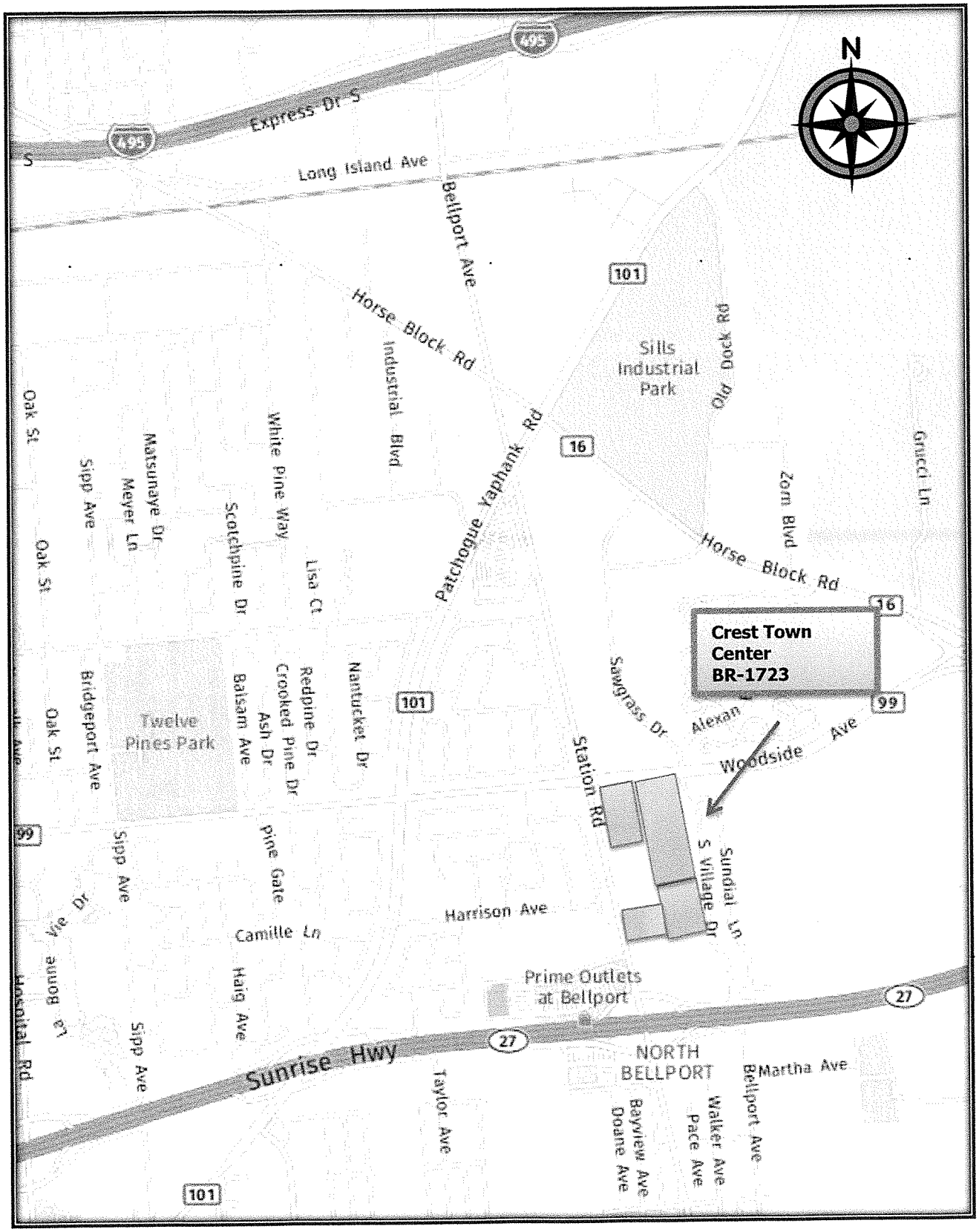
The project is proposed to be situated on 52.3± acre property located on the north side of Sunrise Highway North Service Rd, east of Station Rd. and west of South Village Dr. in Bellport.

The developer is requesting conceptual certification for the estimated flow of Ninety-Five Thousand Six Hundred Fourteen gallons per day (95,614 GPD) proposed to be connected to the SCSD No. 7 – Twelve Pines. Since the prior owner of the property had an allocation of 27,781 GPD from the Brookhaven Industrial Park, the project requires an approval of an additional Sixty-Seven Thousand Eight Hundred Thirty-Three gallons per day (67,833 GPD) of capacity.

The aforementioned capacity is available in the district and the staff recommends granting the request for conceptual certification.

Project Facts:

Type/units:	160 residential units; 106 PRC units; 130-bed assisted living facility; mini-storage warehouse facility (119,600 SF); health club; (33,600 SF); 4,500 SF restaurant with 180 seats & 30 bar seats; 15,000 SF of retail/market/convenience space
% Afford. Housing	15%
Sewer District:	SCSD No. 7 – Twelve Pines
Proposed Flow:	67,833 GPD requested; 27,781 GPD already allocated (95,514 GPD total)
Groundwater Zone:	VI
SEQR:	Incomplete
RPTM:	0200-87200-0200-015.000, 016.000; 0200-89900-0300-002.002, 002.003, 002.004 & 007.000
Legislative District:	3rd


N
Crest Town Center BR-1723
Express Dr S
Long Island Ave
Bellport Ave
Horse Block Rd
Industrial Blvd
Sills Industrial Park
Old Dock Rd
Patchogue Yaphank Rd
Zorn Blvd
Gucci Ln
Oak St
Sipp Ave
Matsunaye Dr
Meyer Ln
White Pine Way
Scotchpine Dr
Lisa Ct
Twelve Pines Park
Bridgeport Ave
Balsam Ave
Ash Dr
Crooked Pine Dr
Redpine Dr
Nantucket Dr
Sawgrass Dr
Alexan
Woodside Ave
Station Rd
S Village Dr
Sundial Ln
Pine Gate
Camille Ln
Harrison Ave
Haig Ave
La Bonne Vie Dr
Hospital Rd
Prime Outlets at Bellport
Sunrise Hwy
NORTH BELLPORT
Martha Ave
Taylor Ave
Bayview Ave
Doane Ave
Walker Ave
Pace Ave
Bellport Ave
495
101
16
99
27

NTS 2018

(Please note that items No.

9. Federal ID No.: 46-3957534 **10. Email Address:** e.scarda@thecrestgroupllc.com

11. Project Plat Name: Crest Town Center **12. Project Location:** Bellport

13. Real Property Tax Map #(s): 200-872-2-15&16, 200-899-3-2.2,2.3,2.4&7,

(Note: Use additional Sheets if necessary) _____, _____

14. Exact address of ALL owners of the land. *If individuals, give home address. If corporation, give corporation address, plus name, email, and office in the corporation held by party who will execute Agreement with Agency. In addition, please furnish names of all principals of corporation.* ***THIS IS NOT OPTIONAL.*** *(Attach additional sheets as necessary).*

Crest Bellport LLC -1201 Route 112, Suite 900, Port Jefferson Station, NY 11776

Enrico Scarda -manager/sole member **Email Address:** e.scarda@thecrestgroupllc.com

15. Project Attorney: Jennifer Appel -Certilman Balin Adler & Hyman, LLP

90 Merrick Avenue, 9th Floor East Meadow, NY 11554 **Email Address:** jappel@certilmanbalin.com

16. Project Engineer/Professional: Thomas F. Lembo, PE, Nelson & Pope, 572 Walt Whitman Road

Melville, NY 11747 631.427.5665 **Email Address:** tlembo@nelsonpope.com

17. Project Area in Acres: 52.95 **No. of Plots:** _____ **No. Units:** _____ **Gallons/day:** 68,614 add - 95,614 total

18. Type of Development:

a. Subdivision - Residential
b. Subdivision – Commercial
c. Subdivision – Industrial
d. HOA Subdivision
e. Condominium
f. Garden Apartments
g. Shopping Center
h. Planned Retirement Community
i. Combination of above letters b, h and j
j. Other Nursing Home

19. The following must accompany the application:

A. Check in the amount of $1,000.00 payable to Suffolk County Comptroller.

B. Copy of deed in the name of number 4 (above).

C. Copy of Lead Agency's SEQRA Declaration.

D. Date application submitted to the SCDHS: 7/12/18 SCDHS Project #: _____

(Note: The SCDHS application must be submitted prior to the Sewer Agency meeting. It is the applicant responsibility to submit the SCDHS application in a timely manner. Please allow sufficient time for the SCDHS to review the application thoroughly. The applicant must have a SCDHS Project # before the application will be placed on the Agenda of the Sewer Agency meeting.)

E. Other pertinent information, i.e. site plan and/or survey, or SCDHS Board of Review Determination.

20a. Is the project connecting to a County Sewage Treatment Plant? _____, Sewer District No.: _____

20b. Is the project subject to Suffolk County Local Law 20-2007 - Affordable Housing?

20c. If answer for 20a. is yes and answer for 20b. is no, state reason: _____

The applicant certifies that the applicable zoning and variances have been secured from the Town.

Enrico Scarda		manager	6/26/18
Applicant's Printed name	Signature	Title	Date

Note: Incomplete Applications Will Not Be Processed

Please return application to:
Suffolk County Sewer Agency
335 Yaphank Avenue
Yaphank, NY 11980
Attn: Boris Rukovets, P.E.

Form SA-1
Rev. 1-2017

SUFFOLK COUNTY SEWER AGENCY

RESOLUTION NO. ___ - 2018,
GRANTING CONCEPTUAL CERTIFICATION FOR THE CONNECTION OF CREST TOWN CENTER (BR-1723) TO SUFFOLK SEWER DISTRICT NO. 7 – TWELVE PINES

WHEREAS, Crest Town Center is a proposed mixed-use residential and commercial development consisting of 160 residential units, 106 Planned Retirement Community units, a 130-bed assisted living facility, a mini-storage warehouse facility, a health club, a restaurant and 15,000 SF of retail/market/convenience space situated in Bellport, New York, on 53± Acre property identified on the Suffolk County Tax Map as District 0200, Section 872.00, Block 0200, Lots 015.000, 016.000 and Section 899.00, Block 0300, Lots 002.002, 002.003, 002.004, 007.000, and

WHEREAS, the sewage flow from Crest Town Center is expected to be Ninety-Five Thousand Six Hundred Fourteen gallons per day (95,614 GPD), and

WHEREAS, Crest Town Center is not located within the boundaries of Suffolk County Sewer District No. 7 – Twelve Pines (the "District"), or within the boundaries of any other municipal sewer district, and

WHEREAS, the subject property had a prior allocation of 27,781 GPD of capacity from the Brookhaven Industrial Park and, therefore, the project requires an approval of an additional Sixty-Seven Thousand Eight Hundred Thirty-Three Gallons (67,833 GPD) of capacity, and

WHEREAS, the developer has applied to this Agency for conceptual certification for connection of an additional Sixty-Seven Thousand Eight Hundred Thirty-Three Gallons (67,833 GPD) of wastewater flow from Crest Town Center to the sanitary sewerage facilities of the District, for a total of Ninety-Five Thousand Six Hundred Fourteen gallons per day (95,614 GPD) of flow, and

WHEREAS, the District's sewage treatment plant has sufficient capacity to accept the proposed flow of Ninety-Five Thousand Six Hundred Fourteen gallons per day (95,614 GPD), which is expected to emanate from Crest Town Center, and

WHEREAS, the connection of Crest Town Center to the District will be financially beneficial to the District, and environmentally beneficial to Suffolk County, and

WHEREAS, inasmuch as the SEQRA process for the aforesaid connection has not been completed, this Agency cannot, at this time, approve the said connection, and

WHEREAS, in the interest of good planning, and in order to minimize potential hardship on applicants, it is the policy of this Agency, upon review of an application prior to the completion of the SEQRA process, to give applicants an indication of what method of wastewater disposal this Agency would like to see for a particular project, thereby giving applicants an indication of the action that this Agency might take if it were to pass upon the application at the time of such review, and

NOW, THEREFORE, IT IS

1st RESOLVED, that this Agency hereby grants "Conceptual Certification" to the proposed connection of Crest Town Center to SCSD No. 7– Twelve Pines, as aforesaid, and it is further

2nd RESOLVED, that this resolution shall become null and void, and of no further force or effect, without any further action by this Agency or notice to the developer of Crest Town Center, within two (2) years from the date of the adoption hereof if an application for Formal Approval in form and content satisfactory to the Chairman of this Agency, has not been submitted for consideration.

3rd RESOLVED, that

1. such conceptual certification is not, and is not to be construed as, final approval, which can only be granted by this Agency after the SEQRA process for the proposed connection has been completed;

2. the applicant shall return to this Agency for such final approval;

3. the granting of conceptual certification as set forth herein shall not be binding upon this Agency when final approval is sought; and

4. the granting of conceptual certification does not constitute a position by this Agency, favorable or otherwise, with respect to local land use, zoning and/or subdivision requirements.

(Suffolk County Sewer Agency Meeting July 16, 2018)

APPENDIX L

TRAFFIC IMPACT STUDY

Nelson & Pope

June 2018

TRAFFIC IMPACT STUDY

CREST TOWN CENTER

Town of Brookhaven

January 2018
Revised June 2018

N & P JOB NO. 16212

NELSON & POPE
ENGINEERS & SURVEYORS
572 WALT WHITMAN ROAD, MELVILLE, NY 11747-2188 . (631)427-5665 . FAX(631)427-5620 . www.nelsonpope.com

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APPENDIX

Appendix A: Existing Traffic Volume
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PURPOSE OF REPORT

Nelson & Pope has investigated the potential traffic impacts associated with the proposed mixed-use development to be located on the east side of Station Road spanning from Woodside Avenue (CR 99) to NYS 27 North Service Road, in North Bellport, Town of Brookhaven, Suffolk County, New York. Access to the 52.95-acre site will be provided via five (5) driveways with a mix of full access and restricted access. The site is currently undeveloped.

This report summarizes the results of a detailed investigation of the traffic impacts associated with the proposed project by reviewing the area's existing roadway characteristics and traffic conditions, estimating the vehicular volume and pattern that the proposed project will generate during peak hours, and analyzing the effect of the additional volume on the surrounding roadway network.

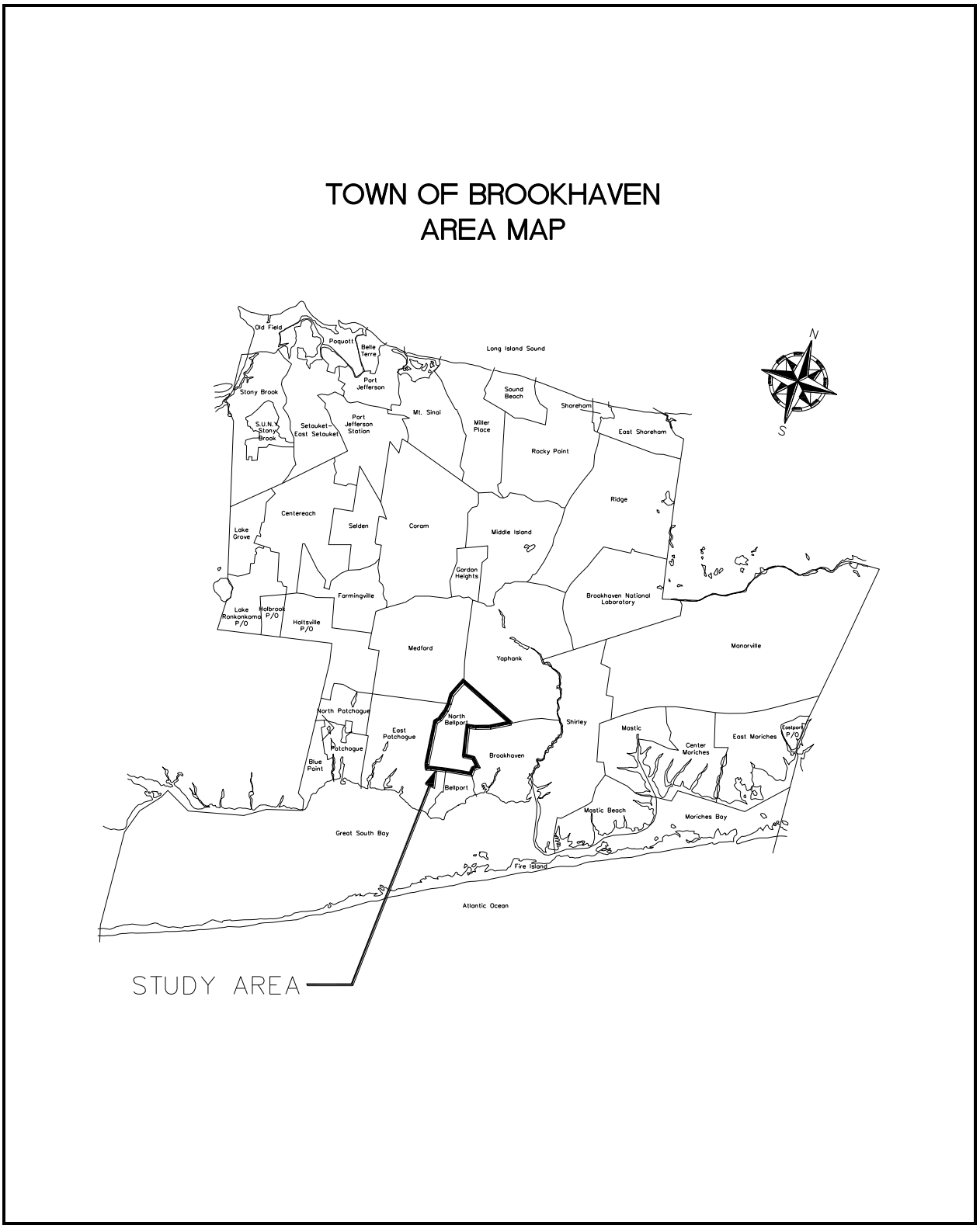
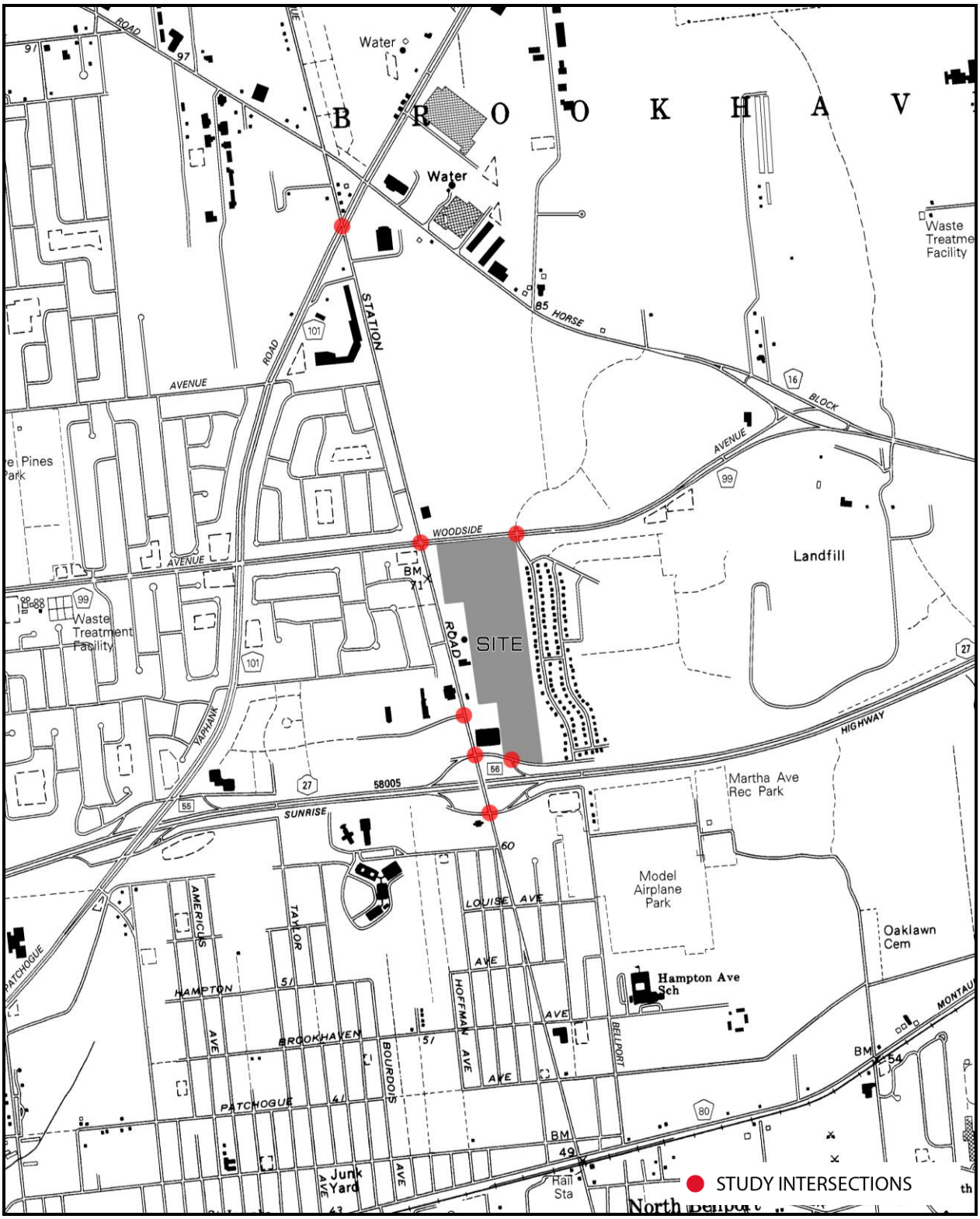


Figure 1: Area Map



SOURCE: USGS BELLPORT 1991

Figure 2: Location Map

STUDY METHODOLOGY

The study assesses the traffic impacts associated with the proposed project and identifies appropriate mitigation, if necessary. In executing the scope of work, the following steps were undertaken.

- A detailed field inspection was conducted to obtain an inventory of existing roadway geometry, location/geometry of existing driveways and intersections along with signing, signal timings, phasing and cycle lengths.

- Turning movement traffic counts were conducted during the weekday morning (7:00 AM to 9:00AM), weekday evening (4:00 PM to 6:00 PM) and Saturday midday (11:00 AM to 2:00 PM) peak hours at the following intersections:

    - Sills Road (CR 101) at Station Road
    - Woodside Avenue (CR 99) at Station Road
    - Woodside Avenue (CR 99) at Sawgrass Drive/S Village Dr
    - Farber Drive at Station Road
    - NYS 27 North Service Road at Station Road
    - NYS 27 South Service Road at Station Road
    - NYS 27 North Service Road at NY27 Exit 56 Westbound Ramp

- The most recent 3-years of accident data for the study intersections and roadways in the vicinity of the site was obtained from NYSDOT. The data was tabulated and summarized.

- The turning movement counts collected at each intersection were tabulated for each time period. Peak hours were identified, and peak hour factors calculated for each approach.

- An annual growth factor of 2.0% obtained from the NYSDOT LITP2000 Study for the Town of Brookhaven (south) was applied to the existing traffic volumes to estimate the increase in background traffic that would occur in 2020. These volumes are referred to as the Base Volumes.

- The Town of Brookhaven was contacted to obtain information on other planned projects in the nearby area that may affect the study intersections.

- Estimates of traffic that would be generated by the proposed project were prepared utilizing trip generation data published by the Institute of Transportation Engineers (ITE) publication, *Trip Generation, Tenth Edition*. The site-generated traffic volumes were assigned to the adjacent street system based upon the anticipated directional trip distribution forecasted by Nelson & Pope.

- The 2020 Build Condition volumes for the proposed project were developed by adding the site generated traffic volumes to the 2020 No Build Condition volumes.

- Capacity analyses were performed at the study intersections for the Existing Condition, No Build Condition and Build Condition for weekday AM and PM peak hours and Saturday Midday peak hour. Capacity analyses were also conducted at the site driveways for the Build Condition during the study periods.

- The results of the analyses for the 2020 No Build Conditions and 2020 Build Conditions were compared to identify any significant impact associated with the proposed project.

- Mitigation measures were developed to offset any impacts created by the proposed project, as necessary.

EXISTING CONDITION

Land Use

As previously discussed, the proposed project will be located on the east side of Station Road spanning from Woodside Avenue (CR 99) to NY27 North Service Road in North Bellport, Town of Brookhaven, Suffolk County, New York. The site is currently undeveloped.

Roadway Conditions

The following is a list of roadways included in the study network surrounding the site. The traffic generated by the proposed mixed-use development will be distributed throughout the network. The general descriptions listed here refer only to the sections of the roadways that exist near the site and their cross-section may vary further away from the site. The average annual daily traffic (AADT) is listed for each roadway where available in the most recent New York State Department of Transportation (NYSDOT) Local Highway Traffic Volumes Report.

Station Road is a north/south roadway under the jurisdiction of the Town of Brookhaven. It provides one travel lane in each direction with exclusive turn lanes at key intersections. Along the site frontage, this roadway experiences annual average daily traffic (AADT) of 12,285 vehicles per day (vpd). The posted speed limit is 30 miles per hour (mph).

Sills Road (CR 101) is a northeast/southwest roadway under the jurisdiction of SCDPW. It provides two travel lanes in each direction separated by a grass median with exclusive turn lanes at key intersections. The average annual daily traffic is 14,323 vpd. The posted speed limit is 45 mph.

Woodside Avenue (CR 99) is an east/west minor arterial roadway under the jurisdiction of NYSDOT. In the vicinity of the study area it provides two lanes per travel direction with exclusive turn lanes at key intersections. The section of Newbridge Road in the vicinity of the study area has an Average Annual Daily Traffic (AADT) volume of approximately 28,876 vpd. The posted speed limit is 40 mph.

Sunrise Highway (NY 27) North Service Road is an east/west roadway that provides access to/from Sunrise Highway and is classified as a principal arterial by NYSDOT. East of Station Road this roadway permits two-way traffic and has an AADT of 2,920 vpd. West of Station Road this roadway permits travel only in the westbound direction and has an AADT of 6,363 vpd. The posted speed limit is 30 mph.

Sunrise Highway (NY 27) South Service Road is an east/west roadway that provides access to/from Sunrise Highway and is classified as a principal arterial by NYSDOT. East of Station Road this roadway permits two-way traffic and has an AADT of 2,266 vpd. West of Station Road this roadway also permits two-travel and has an AADT of 6,642 vpd. The posted speed limit is 30 mph.

Table 1 summarizes the lane configurations and traffic controls at the study intersections.

Table 1: Intersection Geometry

Intersection	Approach	Lane Designation*	Traffic Control
Sills Road (CR 101) at Station Road	EB WB NB SB	L-2T-R L-2T-R L-T-R LTR	Traffic Signal
Woodside Avenue (CR 99) at Station Road	EB WB NB SB	L-2T-R L-2T-R L-TR L-TR	Traffic Signal
Woodside Avenue (CR 99) at S Village Drive/Sawgrass Drive	EB WB NB SB	L-2T-R L-2T-R L-TR L-T-R	Traffic Signal
Farber Drive at Station Road	EB WB NB SB	LT-R LTR L-T-R LT-TR	Traffic Signal
NY27 North Service Road at Station Road	WB NB SB	LT-R L-TR L-T-R	Traffic Signal
NY27 South Service Road at Station Road	EB WB NB SB	L-TR LTR L-TR L-TR	Traffic Signal
NY27 North Service Road at Exit 56 WB Ramp	EB WB NB	T T LR	Stop Control (NB)

** L = Left turn lane; T = through lane; R = Right turn lane*

Traffic Volume Data

Turning movement counts were collected at the following study intersections on Wednesday, April 19, 2017 during the AM (7:00-9:00 AM) and PM (4:00-6:00 PM) peak periods. Saturday counts were collected during the midday peak period (11:00AM-2:00PM) on April 22, 2017.

- Sills Road (CR 101) at Station Road
- Woodside Avenue (CR 99) at Station Road
- Woodside Avenue (CR 99) at Sawgrass Drive/S Village Dr
- Farber Drive at Station Road
- NY27 North Service Road at Station Road

- NY27 South Service Road at Station Road
- NY27 North Service Road at NY27 Exit 56 Westbound Ramp

Seasonal adjustment factors of 1.062 and 0.895 for weekday and weekend respectively for June (month of counts) were obtained from data contained in the 2017 NYSDOT Traffic Data Report. These seasonal adjustment factors were developed from NYSDOT continuous data collected for a three-year period. Applying the weekend normalization factors to the traffic volumes will increase the volumes; hence the weekend volumes were normalized. In order to perform a conservative analysis, the weekday data was not normalized since it would result in a decrease in the traffic volumes. The existing intersection peak hour volumes are shown on Figures 3, 4, and 5 and detailed data are contained in Appendix A.

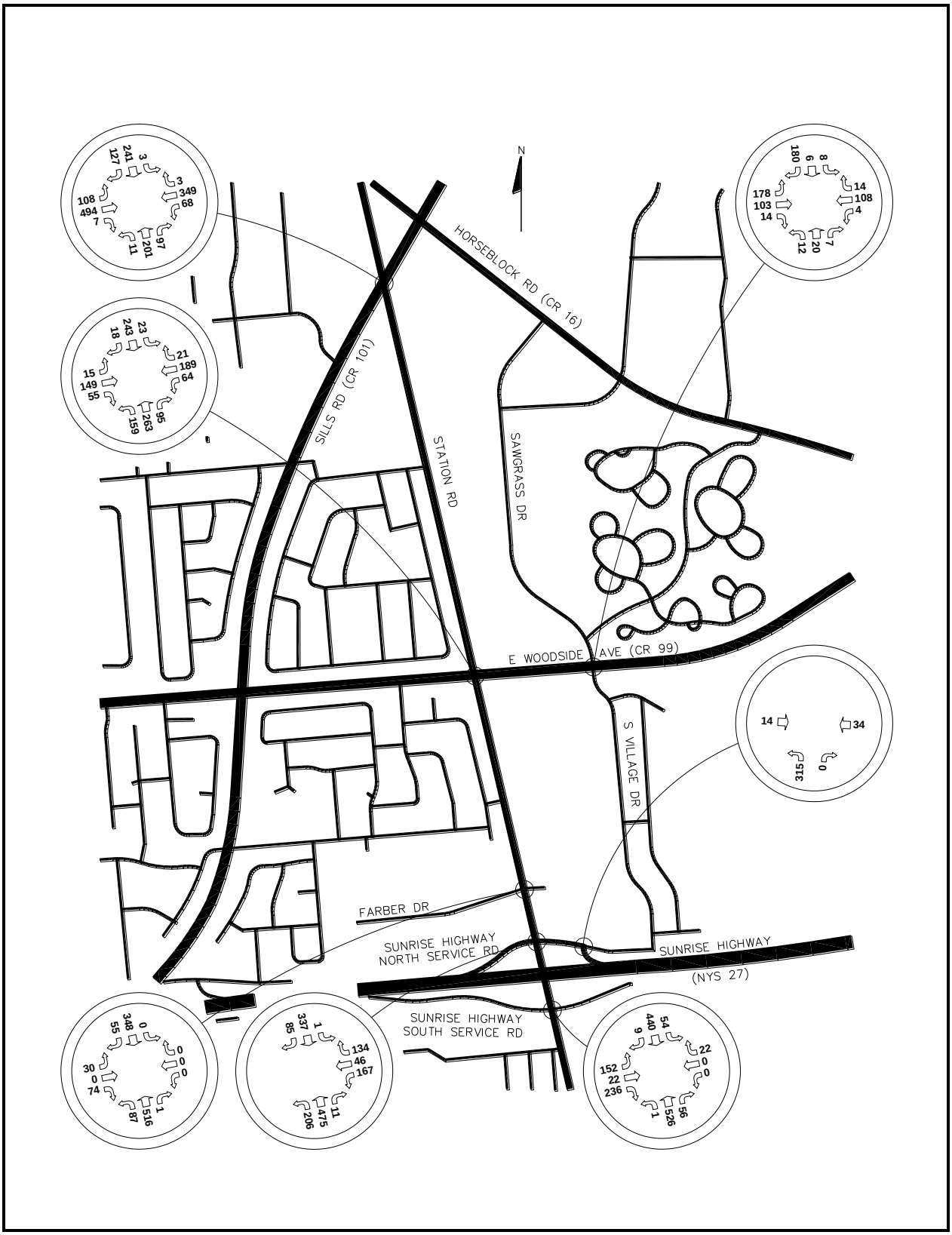


Figure 3: Existing AM Peak Hour Traffic Volumes

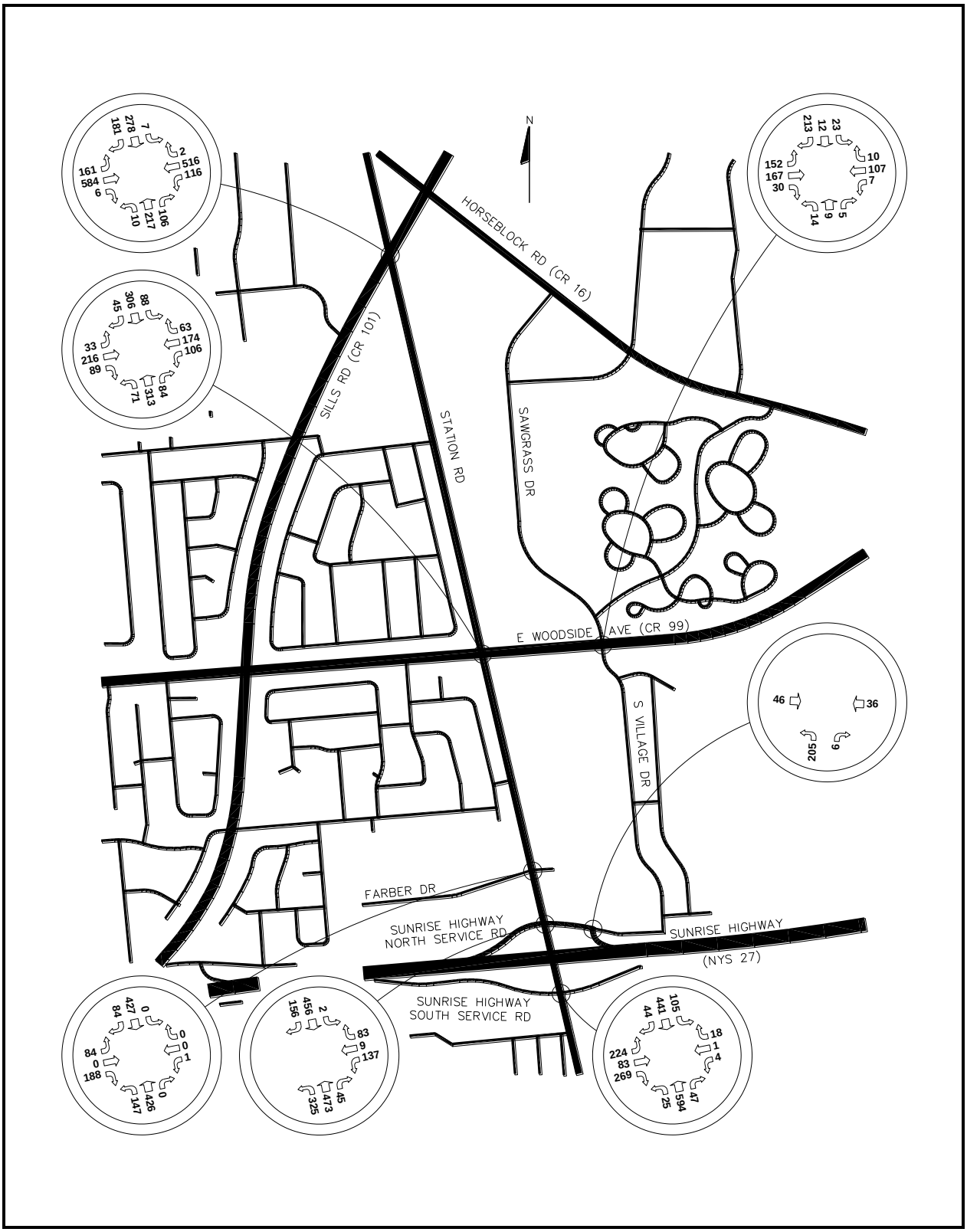


Figure 4: Existing PM Peak Hour Traffic Volumes

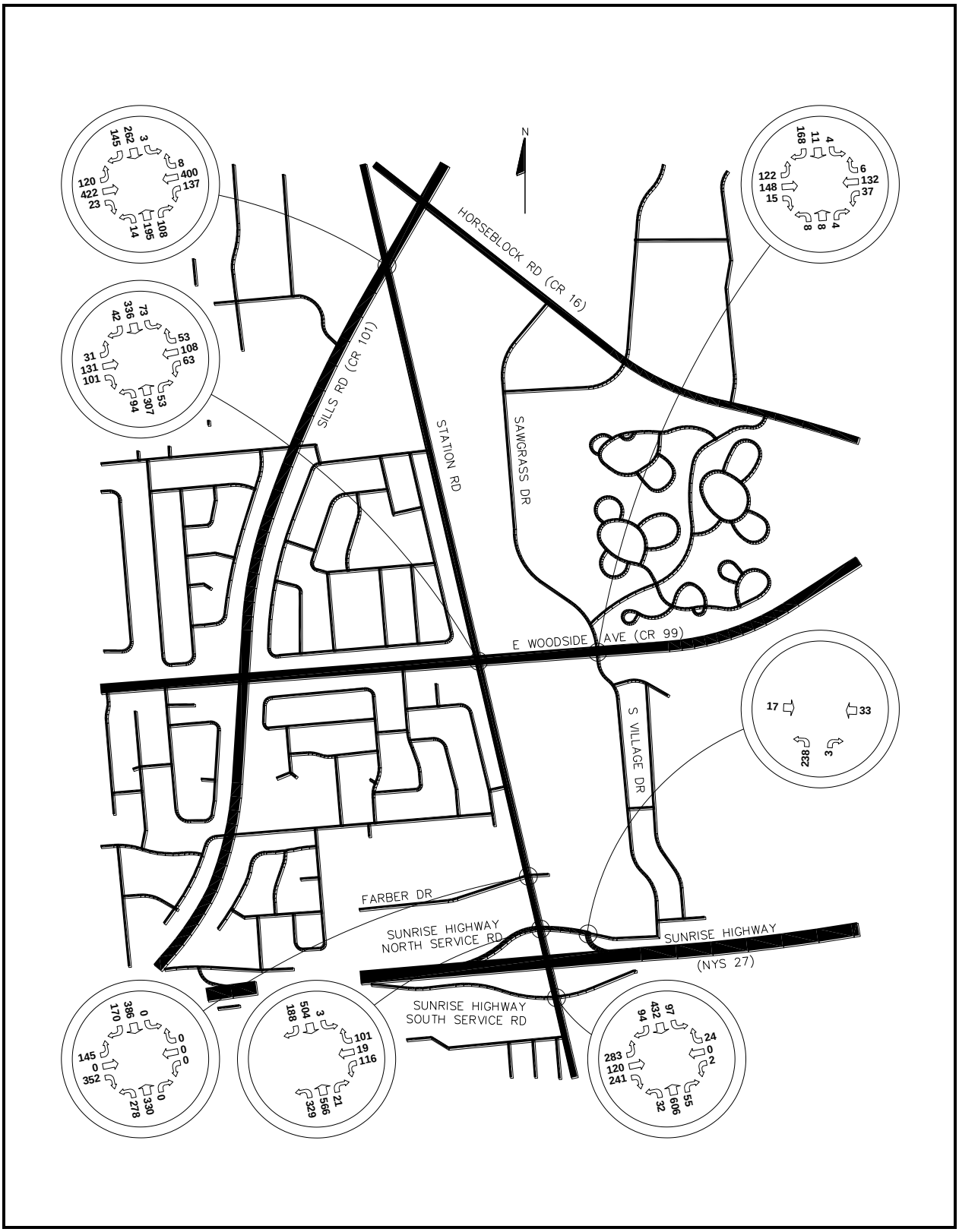


Figure 5: Existing Saturday Peak Hour Traffic Volumes

Accident History

Accident data for the sections of roadways and intersections in the vicinity of the site were obtained from the NYSDOT. The most recent data available was from January 1, 2014 to December 31, 2016 (3-year period). The data was reviewed and summarized in the following tables.

Table 2: Accident Summary by Severity

Location	Accident Severity			
	Fatality	Injury	Property Damage	TOTAL
Sills Road (CR 101) at Station Road	-	6	11	17
Station Road between Sills Road (CR 101) and Tarpon Avenue	-	-	-	0
Tarpon Avenue at Station Road	-	-	-	0
Station Road between Tarpon Avenue and Tie Street	-	-	-	0
Tie Street and Station Road	-	1	2	3
Station Road between Tie Street and E Woodside Avenue (CR 99)	-	-	3	3
E Woodside Avenue (CR 99) at Station Road	-	11	5	16
Station Road between E Woodside Avenue and Corbin Avenue	-	-	2	2
Corbin Avenue at Station Road	-	-	-	0
Station Road between Corbin Avenue and Hollow Street	-	-	-	0
Hollow Street at Station Road	-	-	1	1
Station Road between Hollow Street and Farber Drive	-	-	-	0
Farber Drive at Station Road	1	2	4	7
Station Road between Farber Drive and Sunrise Highway North Service Road	-	-	1	1
Sunrise Highway North Service Road at Station Road	-	6	1	7
Station Road between Sunrise Highway North Service Road and Sunrise Highway South Service Road	-	1	4	5
Sunrise Highway South Service Road at Station Road	-	7	6	13
Sunrise Highway North Service Road between Station Road and Sunrise Highway Exit 56 Westbound	-	-	-	0
Sunrise Highway North Service Road and Sunrise Highway Exit 56 Westbound	-	2	1	3
Total	1 *1%*	36 *46%*	41 *53%*	78 *100%*

Table 2 indicates a total of 78 accidents occurred at or in the vicinity of the study intersections during the analysis period. The majority of the accidents resulted in property damage. The location with the greatest number of accidents is the intersection of Sills Road at Station Road with 17 accidents, followed by Woodside Avenue at Station Road and NY27 South Service Road at Station Road with 16 and 13 accidents, respectively. There was one fatal accident recorded during the study period which occurred at the intersection of Farber Drive and Station Road, which was a right-angle collision and the result of a driver losing consciousness while travelling at an unsafe speed.

Table 3: Accident Summary by Type of Collision

Location	Accident Type											
	Right Angle	Rear End	Head On	Left Turn	Right Turn	Fixed Object	Ped/ Bicycle	Overtk	Side swipe	Backing	Other/ Unknown	Total
Sills Road (CR 101) at Station Road	6	9	-	1	-	-	-	-	-	-	1	17
Station Road between Sills Road (CR 101) and Tarpon Avenue	-	-	-	-	-	-	-	-	-	-	-	0
Tarpon Avenue at Station Road	-	-	-	-	-	-	-	-	-	-	-	0
Station Road between Tarpon Avenue and Tie Street	-	-	-	-	-	-	-	-	-	-	-	0
Tie Street and Station Road	-	-	-	2	-	-	-	-	-	-	1	3
Station Road between Tie Street and E Woodside Avenue (CR 99)	-	1	-	-	-	1	-	1	-	-	-	3
E Woodside Avenue (CR 99) at Station Road	1	12	1	1	-	-	-	-	-	-	1	16
Station Road between E Woodside Avenue and Corbin Avenue	-	-	-	-	1	1	-	-	-	-	-	2
Corbin Avenue at Station Road	-	-	-	-	-	-	-	-	-	-	-	0
Station Road between Corbin Avenue and Hollow Street	-	-	-	-	-	-	-	-	-	-	-	0
Hollow Street at Station Road	-	-	-	-	-	-	-	-	-	-	1	1
Station Road between Hollow Street and Farber Drive	-	-	-	-	-	-	-	-	-	-	-	0
Farber Drive at Station Road	1	1	1	1	-	1	-	-	1	-	1	7

Location	Accident Type											
	Right Angle	Rear End	Head On	Left Turn	Right Turn	Fixed Object	Ped/ Bicycle	Overtk	Side swipe	Backing	Other/ Unknown	Total
Station Road between Farber Drive and Sunrise Highway North Service Road	-	-	-	-	-	-	-	-	-	1	-	1
Sunrise Highway North Service Road at Station Road	2	-	-	3	-	1	-	-	-	-	1	7
Station Road between Sunrise Highway North Service Road and Sunrise Highway South Service Road	-	1	-	-	-	1	-	-	1	-	2	5
Sunrise Highway South Service Road at Station Road	1	9	-	-	-	-	-	-	-	-	3	13
Sunrise Highway North Service Road between Station Road and Sunrise Highway Exit 56 Westbound	-	-	-	-	-	-	-	-	-	-	-	0
Sunrise Highway North Service Road and Sunrise Highway Exit 56 Westbound	1	1	-	-	-	-	-	-	-	-	1	3
Total	12 *15%*	34 *44%*	2 *3%*	8 *10%*	1 *1%*	5 *7%*	0 *0%*	1 *1%*	2 *3%*	1 1%	12 *15%*	78 *100%*

A review of Table 3 indicates that a plurality of the accidents (44%) were rear end accident types. The second most frequent type of accident was right angle accidents and other/unknown accidents (both 15%).

LEVEL OF SERVICE DESCRIPTION

While traffic volumes provide an important measure of activity on the adjacent roadway network, evaluating how well that network accommodates those volumes is also important. Therefore, a comparison between peak hour traffic volumes and available roadway capacity was prepared. Capacity, by definition, represents the maximum number of vehicles that can be accommodated given the constraints of roadway geometry, traffic characteristics and controls. Intersections primarily control capacity within roadway networks, since conflicts exist at these points resulting from through, crossing and turning traffic. Because of these conflicts, congestion is most likely to occur at intersections. Therefore, intersections are studied most often when determining the quality of traffic flow.

To identify the operational characteristics of the study intersections, LOS and capacity analyses and arterial network analyses for the study intersections were performed using *SYNCHRO Version 9* Software. *SYNCHRO*, in conjunction with *SimTraffic*, is a software package that allows for an interactive analysis of a single intersection or a network of intersections and can also be used for modeling and optimizing traffic signal timings. The *SimTraffic* component provides simulations of operations with animation features. *SYNCHRO* implements the Intersection Capacity Utilization (ICU) 2003 method for determining intersection capacity. This method compares the current volume to the intersections ultimate capacity. *SYNCHRO* also implements the methods of the 2010 Highway Capacity Manual (HCM) for urban streets, signalized intersections, and unsignalized intersections for determining intersection capacity analyses. The *HCM* contains procedures and methodologies for estimating capacity and determining LOS for many transportation facilities and modes including signalized and unsignalized intersections.

An intersection's LOS (LOS) describes its quality of traffic flow. It ranges in grade from LOS "A" (relatively congestion-free) to LOS "F" (very congested). The LOS definition, as well as the threshold values for each level, varies according to whether the intersection is controlled by a signal or a stop sign. A brief description is given here, and a more detailed definition is found in Appendix C.

The capacity of a signalized intersection is evaluated in terms of the ratio of demand flow rate to capacity (V/C ratio). The capacity for each approach represents the maximum rate of flow (for the subject approach) which may pass through the intersection under prevailing traffic, roadway and signal conditions. The LOS of a signalized intersection is evaluated based on average control-delay measured in seconds per vehicle (sec/veh). The control-delay is calculated using an equation that combines the stopped-delay with the vehicle acceleration/deceleration delay that is caused by the signalized intersection. At the signalized intersections, factors that affect the various approach capacities include width of approach, number of lanes, signal "green time", turning percentages, truck volumes, etc. However, delay cannot be related to capacity in a simple one-to-one fashion. For example, it is possible to have delays in the LOS "F" range without exceeding roadway capacity. Substantial delays can exist without exceeding capacity if one or more of the following conditions exist: long signal cycle length; a particular traffic movement experience a long red time; or progressive movements for a particular lane is poor.

The flow at a two-way stop-controlled (TWSC) intersection is gauged in terms of LOS and capacity. The capacity of a stop-controlled leg is based on the distribution of gaps in the major street traffic, driver judgment in selecting a gap, and the follow-up time required by each driver in a queue. The LOS for a TWSC intersection is determined by the control-delay and is defined for each movement rather than for the overall intersection. As with signalized intersections, HCS quantifies only the average control-delay, which is a function of the approach and the degree of saturation for any particular minor movement.

EXISTING CONDITION ANALYSIS

The 2017 existing peak hour traffic volumes depicted in Figures 3, 4 and 5 were used to determine the existing capacity and LOS of the study intersections. Table 4 contains the LOS summary for signalized intersections and Table 5 contains the LOS summary for unsignalized intersections under the Existing Condition calculated through the Synchro software described previously. The detailed analysis worksheets are in Appendix D.

Table 4: Existing Condition LOS Summary – Signalized Intersections

			AM Peak		PM Peak		Saturday Peak	
Location	Approach	Movt.	Delay	LOS	Delay	LOS	Delay	LOS
Sills Road (CR 101) at Station Road	EB	L	54.6	D	46.8	D	47.3	D
		T	21.9	C	25.4	C	21.6	C
		R	0.0	A	0.0	A	0.2	A
	WB	L	41.5	D	49.5	D	54.2	D
		T	20.3	C	26.9	C	20.1	C
		R	0.0	A	0.0	A	0.1	A
	NB	L	18.1	B	17.7	B	17.3	B
		T	23.9	C	22.8	C	21.1	C
		R	2.5	A	4.1	A	2.2	A
	SB	LTR	43.5	D	35.8	D	31.5	C
		Intersection	28.2	C	29.4	C	26.1	C
Woodside Ave (CR 99) at Station Road	EB	L	32.5	C	37.5	D	31.8	C
		T	29.9	C	33.6	C	29.0	C
		R	0.4	A	2.3	A	2.5	A
	WB	L	35.2	D	39.9	D	32.7	C
		T	19.8	B	26.5	C	22.7	C
		R	0.1	A	1.3	A	0.2	A
	NB	L	21.7	C	15.3	B	15.8	B
		TR	37.4	D	39.8	D	45.5	D
	SB	L	13.7	B	15.8	B	14.4	B
		TR	56.3	E	35.2	D	44.9	D
		Intersection	33.2	C	30.1	C	32.2	C
Woodside Ave (CR 99) at Sawgrass Dr/S Village Dr	EB	L	7.2	A	6.1	A	4.5	A
		T	4.9	A	4.8	A	3.6	A
		R	0.8	A	1.7	A	2.0	A
	WB	L	5.0	A	5.0	A	3.9	A
		T	4.9	A	4.7	A	3.6	A
		R	0.5	A	0.4	A	1.2	A
	NB	L	21.7	C	27.1	C	14.6	B
		TR	18.1	B	20.0	B	12.2	B
	SB	L	20.6	C	27.3	C	14.0	B
		T	20.0	B	24.7	C	14.2	B
		R	9.9	A	10.9	B	7.6	A
		Intersection	8.0	A	8.8	A	5.6	A

			AM Peak		PM Peak		Saturday Peak	
Location	Approach	Movt.	Delay	LOS	Delay	LOS	Delay	LOS
Farber Drive/Driveway at Station Road	EB	LT	32.8	C	35.8	D	40.1	D
		R	5.7	A	9.0	A	12.0	B
	WB	LTR	0.0	A	25.0	C	0.0	A
	NB	L	3.1	A	4.9	A	9.9	A
		T	4.9	A	6.1	A	7.1	A
		R	0.0	A	0.0	A	0.0	A
	SB	LTR	7.1	A	10.4	B	16.2	B
		Intersection	6.8	A	10.0	B	14.6	B
NY 27 North Service Road at Station Road	WB	LT	43.9	D	51.0	D	61.6	E
		R	32.2	C	37.7	D	52.6	D
	NB	L	7.1	A	8.0	A	6.1	A
		TR	8.8	A	5.7	A	5.2	A
	SB	L	12.0	B	11.0	B	9.0	A
		T	18.8	B	17.4	B	13.7	B
		R	3.6	A	2.9	A	2.2	A
		Intersection	17.5	B	14.6	B	14.5	B
NY 27 South Service Road at Station Road	EB	L	42.7	D	152.0	F	46.3	D
		TR	122.6	F	296.9	F	50.5	D
	WB	LTR	0.2	A	25.4	C	0.2	A
	NB	L	9.0	A	7.4	A	13.0	B
		TR	24.0	C	20.4	C	37.6	D
	SB	L	7.1	A	8.8	A	28.9	C
		TR	13.9	B	7.6	A	15.6	B
		Intersection	40.8	D	83.1	F	33.8	C

Sills Road (CR 101) at Station Road

The signalized intersection of Sills Road at Station Road currently operates at overall LOS C during the weekday AM and PM peak hours and the Saturday midday peak hour.

Woodside Avenue (CR 99) at Station Road

The signalized intersection of Woodside Avenue and Station Road currently operates at overall LOS C during the weekday AM and PM peak hours and the Saturday midday peak hour.

Woodside Avenue (CR 99) at Sawgrass Drive/S Village Drive

The signalized intersection of Woodside Avenue and Sawgrass Drive/S Village Drive currently operates at overall LOS A during the weekday AM and PM peak hours and the Saturday midday peak hour.

Farber Drive/Driveway at Station Road

The signalized intersection of Farber Drive and Station Road currently operates at overall LOS A during the weekday AM peak hour and at LOS B during the weekday PM peak hour and the Saturday midday peak hour.

NY27 North Service Road at Station Road

The signalized intersection of NY27 North Service Road at Station Road currently operates at LOS B during the weekday AM and PM peak hours and the Saturday midday peak hour.

NY27 South Service Road at Station Road

The signalized intersection of NY27 South Service Road at Station Road currently operates at LOS D, LOS F and LOS C during the weekday AM, weekday PM and Saturday midday peak hours, respectively.

Table 5: Existing Condition LOS Summary – Unsignalized Intersections

			AM Peak		PM Peak		Saturday Peak	
Location	Approach	Movt.	Delay	LOS	Delay	LOS	Delay	LOS
NY 27 North Service Road at Westbound Exit 56 Ramp	NB	LR	11.1	B	10.5	B	10.4	B

NY27 North Service Road at Westbound Exit 56 Ramp

The northbound approach of the unsignalized intersection of NY27 North Service Road at Westbound Exit 56 Ramp currently operates at LOS B during the weekday AM and PM peak hours and the Saturday midday peak hour.

NO BUILD CONDITION

The No Build Condition represents traffic conditions expected at the study intersections in the future year 2020 without the construction of the proposed project. The No Build Condition traffic volumes are estimated based on two factors as follows:

- Increases in traffic due to general population growth and developments outside of the immediate project area. This traffic increase is referred to as ambient growth.
- Other planned projects located near the project site that may affect traffic levels and patterns at the study intersections in this report.

Traffic Growth

A 2.0% annual growth factor was obtained from the New York State Department of Transportation (NYSDOT) Long Island Transportation Plan 2000 Study (LITP2000) for the Town of Brookhaven (south). The existing traffic volumes were increased by this factor for a period of three (3) years to project volumes to the year 2020.

Other Planned Projects

"Other Planned Projects" is a term that refers to developments located near the project site that are currently under construction or in the planning stages. Traffic generated by these projects may significantly influence the operations of the study intersections and would not be represented in the field data collected. The Town of Brookhaven was contacted to obtain information on any planned projects in the area. At the time this study was conducted, no planned projects were provided to us by the Town. The No Build traffic volumes are shown on Figures 6, 7 and 8.

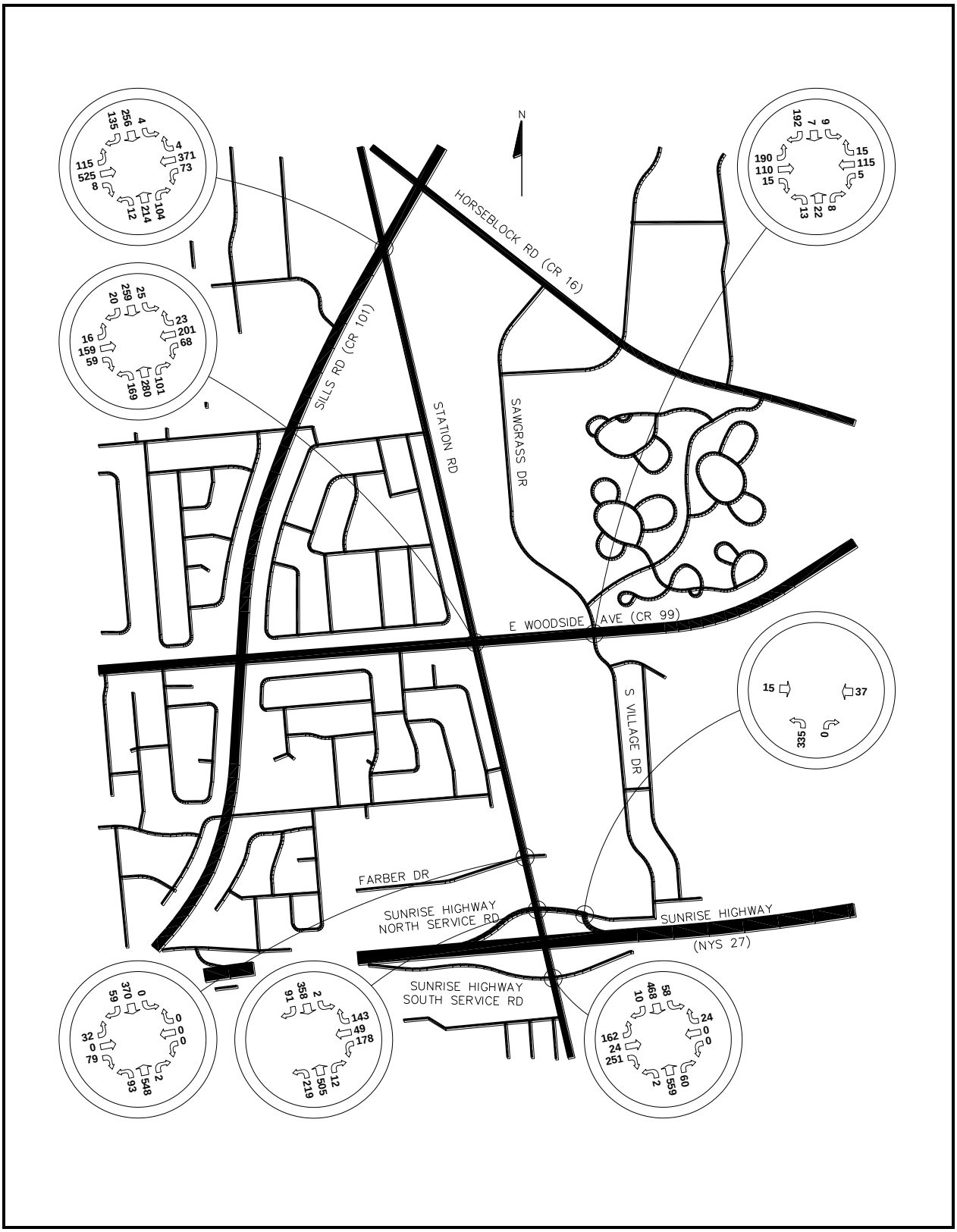


Figure 6: 2020 No Build AM Peak Hour Traffic Volumes

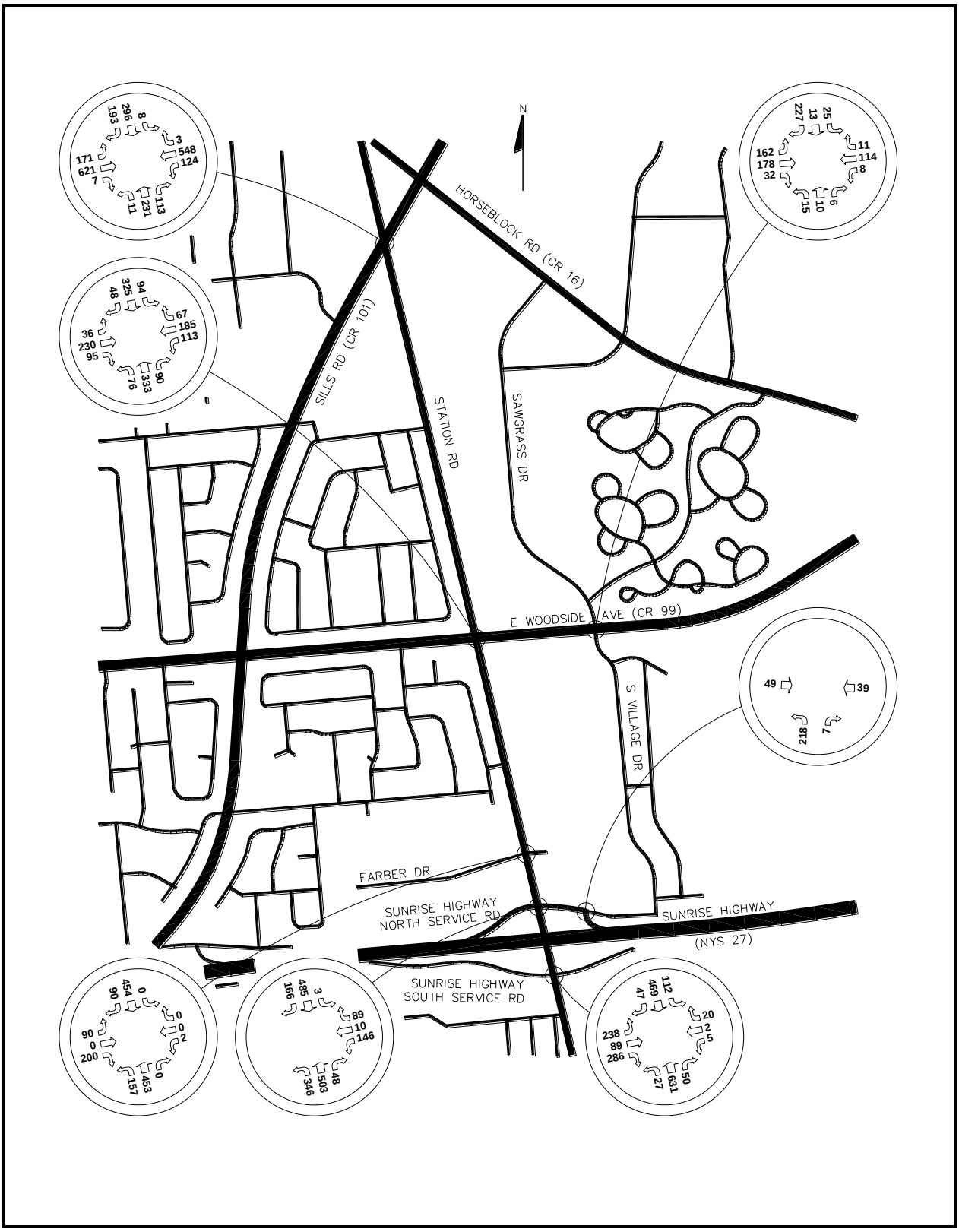


Figure 7: 2020 No Build PM Peak Hour Traffic Volumes

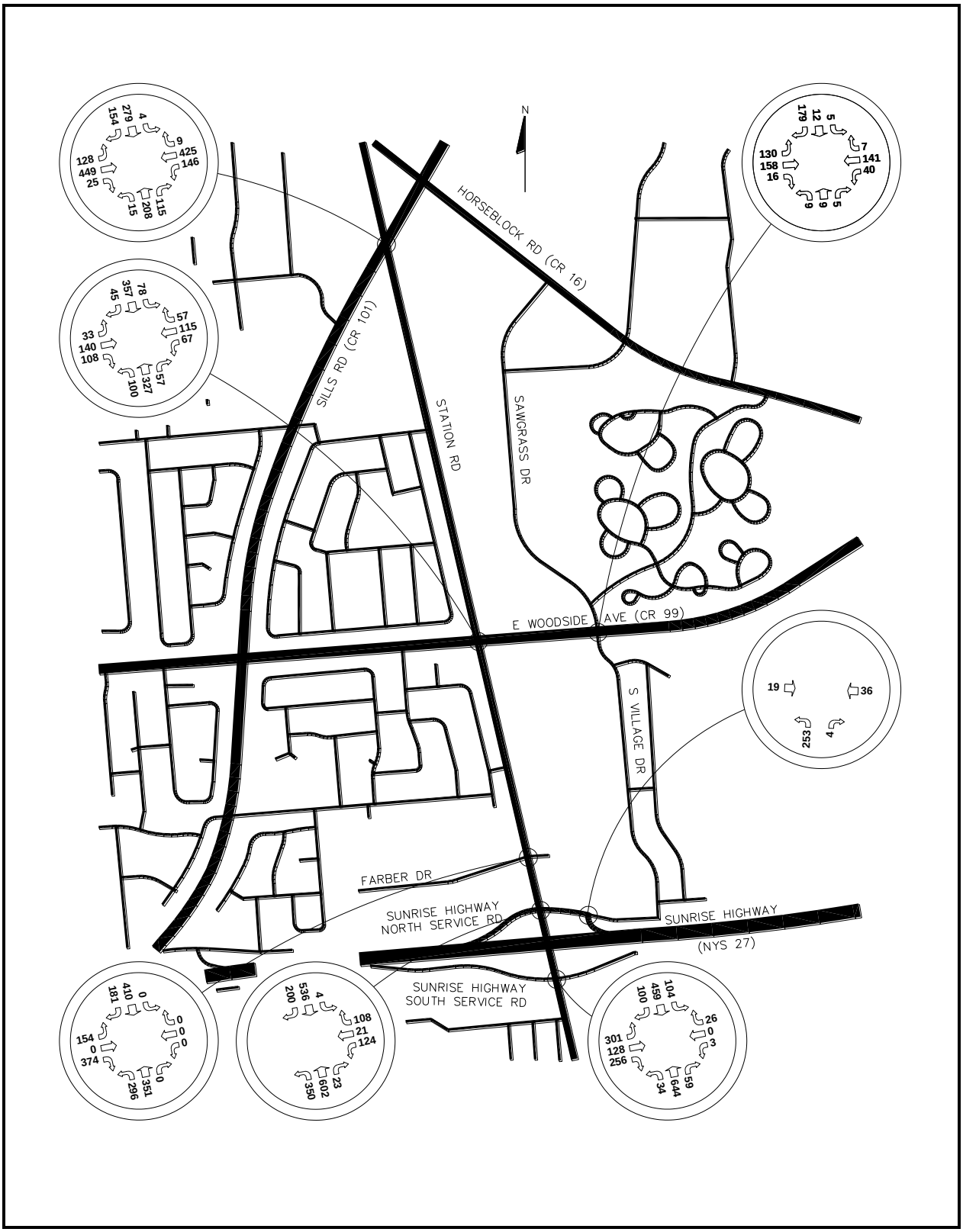


Figure 8: 2020 No Build Saturday Peak Hour Traffic Volumes

PROPOSED DEVELOPMENT

Site Access

As depicted on the site plan prepared by Nelson & Pope, access to the proposed project will be provided via five (5) driveways, as follows:

1. S Village Drive at Site Access – full movement driveway
2. Woodside Avenue at Site Access – right-turn entrance only driveway
3. Station Road at Site Access – full movement driveway
4. NY27 North Service Road at Site Exit – right-turn exit only driveway
5. NY27 North Service Road at Site Access – full movement driveway

Trip Generation

To identify the impacts, the proposed project may have on the adjacent street system, it is necessary to estimate the magnitude of traffic volume generated during the peak hours and to estimate the directional distribution of the site traffic when entering and exiting the subject property.

The trip generation estimates for the uses of the proposed project were prepared utilizing data from the ITE publication, *Trip Generation Manual, Tenth Edition*. The ITE trip generation publication sets forth trip generation data obtained by traffic counts conducted at sites throughout the country. The *ITE Trip Generation Handbook* is a valuable reference for traffic studies, as it is by far the most comprehensive source of empirical data on traffic impacts for different land uses. It should be noted that the basic premise behind the data presented in the *ITE Trip Generation Handbook* is that data is collected at single use/freestanding sites and does not take into account interaction between different uses on the same site. Recommended procedures provide guidance for estimating internal capture at multi-use developments, as described in Chapter 7 of the *ITE Trip Generation Handbook*. Another phenomenon noted in the *ITE Trip Generation Handbook* is that traffic associated with some uses, especially retail uses is not 100% newly generated, a significant portion of these trips will be "pass-by" traffic, described as a trip that someone makes en route to their destination. An example of a pass-by trip is when someone stops for gas on the way to/from work and the gas station is on the typically travelled route. The proposed project is

designated a Planned Development District (PDD) with mixed-uses. Therefore, to estimate the trips generated by the Proposed Project, the following steps were undertaken:

- Obtain the trip generation estimates from the ITE Trip Generation Manual.
- Apply pass-by credit to the restaurant and retail uses only.
- Utilize the internal trip capture methodology contained in Chapter 7 of the ITE Trip Generation Handbook.

Trip Generation with No Adjustment

The trip generation estimates for all the proposed uses under the Proposed Project were prepared utilizing data from the ITE publication, *Trip Generation Manual, Tenth Edition*.

- LUC 151 – Mini Warehouse
- LUC 220 – Multi-Family Housing, Low Rise
- LUC 251 – Senior Adult Housing Detached
- LUC 254 – Assisted Living
- LUC 492 – Health/Fitness Club
- LUC 820 – Shopping Center
- LUC 932 - High-Turnover Sit-Down Restaurant

The following table is a summary of the estimated trip generation for the components of the proposed project, without any trip reduction.

Table 6: Trip Generation

Time Period	Apartments 160 Units	Assisted Living 130 Beds	Senior Housing 106 Units	Restaurant 180 Seats	Fitness Club 33,600 SF	Retail 15,000 SF	Mini-Storage 119,600 SF	TOTAL
AM	13 enter	16 enter	14 enter	45 enter	22 enter	9 enter	7 enter	126 enter
	51 exit	7 exit	29 exit	41 exit	22 exit	5 exit	5 exit	160 exit
	64 total	23 total	43 total	86 total	44 total	14 total	12 total	286 total
PM	56 enter	19 enter	30 enter	43 enter	69 enter	27 enter	9 enter	253 enter
	30 exit	19 exit	20 exit	33 exit	52 exit	30 exit	11 exit	195 exit
	86 total	38 total	50 total	76 total	121 total	57 total	20 total	448 total
SATURDAY	50 enter	16 enter	6 enter	50 enter	52 enter	35 enter	9 enter	218 enter
	42 exit	19 exit	6 exit	45 exit	55 exit	33 exit	11 exit	211 exit
	92 total	35 total	12 total	95 total	107 total	68 total	20 total	429 total

Source: Trip Generation, 10th Edition, published by ITE

As can be seen from Table 6 above, the 160 apartments are anticipated to generate 64, 86 and 92 trips during the AM, PM and Saturday peak hours, respectively. The 130 beds of assisted living

are anticipated to generate 23, 38 and 35 trips during the AM, PM and Saturday peak hours, respectively. The 106 senior housing units are anticipated to generate 43, 50 and 12 trips during the AM, PM and Saturday peak hours, respectively. The 180-seat restaurant is anticipated to generate 86, 76 and 95 trips during the AM, PM and Saturday peak hours, respectively. The 33,600 SF fitness club is anticipated to generate 44, 121 and 107 trips during the AM, PM and Saturday peak hours, respectively. The 15,000 SF Retail component is anticipated to generate 14, 57 and 68 trips during the AM, PM and Saturday peak hours, respectively. The 119,600 SF mini-storage facility is anticipated to generate 12, 20 and 20 trips during the AM, PM and Saturday peak hours, respectively. Therefore, the total unadjusted trip generation for the proposed project is 286, 448 and 429 tips during the AM, PM and Saturday peak hours, respectively.

Pass by Credit

It should also be noted that, according to studies conducted by the ITE, traffic associated with retail and restaurant uses are not 100% newly generated; a portion of these trips will be "pass-by" traffic. Therefore, pass-by credit has been applied to the restaurant and retail components of the proposed project. Average pass-by credit of 43% was applied to the PM trips and 20% was applied to the Saturday trips (source: ITE Trip Generation Handbook) to the unadjusted trip generation of the restaurant use. Average pass-by credit of 34% was applied to the PM trips and 26% was applied to the Saturday trips (source: ITE Trip Generation Handbook) to the unadjusted trip generation of the retails use.

Adjustment for Internal Capture Trips

It should be noted that the basic premise behind the data presented in the *ITE Trip Generation Handbook* is that data is collected at single use/freestanding sites and does not take into account interaction between different uses on the same site. However, in a multi-use development like the proposed project, a portion of the traffic utilizing the retail, restaurant and fitness club will originate from the residential portion of the development and will not utilize surrounding roadways. Therefore, the combined trip generation data for the retail, restaurant and residential uses obtained from ITE presented above will be higher than the anticipated site generated traffic

utilizing the study area roadways. Therefore, internal credits between the retail, residential and restaurant uses were calculated in accordance with procedures for estimating internal capture at multi-use developments, described in Chapter 7 of the *ITE Trip Generation Handbook.* For the fitness club, 10% interaction was assumed. The calculations of the internal capture rates for this project are contained in the Appendix of the report.

Table 7: Adjusted Trip Generation

Time Period	Apartments 160 Units	Assisted Living 130 Beds	Senior Housing 106 Units	Restaurant 180 Seats	Fitness Club 33,600 SF	Retail 15,000 SF	Mini-Storage 119,600 SF	TOTAL
AM	12 enter	16 enter	12 enter	42 enter	20 enter	3 enter	7 enter	112 enter
	49 exit	7 exit	28 exit	34 exit	20 exit	3 exit	5 exit	146 exit
	61 total	23 total	40 total	76 total	40 total	6 total	12 total	258 total
PM	51 enter	19 enter	27 enter	15 enter	62 enter	5 enter	9 enter	188 enter
	23 exit	19 exit	15 exit	11 exit	47 exit	9 exit	11 exit	135 exit
	74 total	38 total	42 total	26 total	109 total	14 total	20 total	322 total
SATURDAY	39 enter	16 enter	5 enter	27 enter	47 enter	6 enter	9 enter	149 enter
	26 exit	19 exit	4 exit	22 exit	49 exit	11 exit	11 exit	142 exit
	65 total	35 total	9 total	49 total	96 total	17 total	20 total	291 total

As can be seen from Table 7 above, the Proposed Project is anticipated to generate 258 new trips (112 entering and 146 exiting) during the weekday AM peak hour, 322 new trips (188 entering and 135 exiting) during the weekday PM peak hour and 291 new trips (149 entering and 142 exiting) during the Saturday midday peak hour.

Trip Distribution and Assignment

The volume of site traffic expected to be generated by the proposed project during peak hours was distributed and assigned to each intersection movement based on existing roadway volumes and travel patterns. The nature of the proposed land uses and their associated travel patterns were considered as well. Figure 9 depicts the trip distribution for the proposed project. Figures 10, 11 and 12 depict the site generated traffic volumes for the weekday AM and PM peak hours and Saturday midday peak hours. The site generated traffic volumes were then added to the weekday AM, PM and Saturday No Build Condition volumes resulting in the Build Condition volumes. The Build volumes are depicted in Figures 13, 14 and 15.

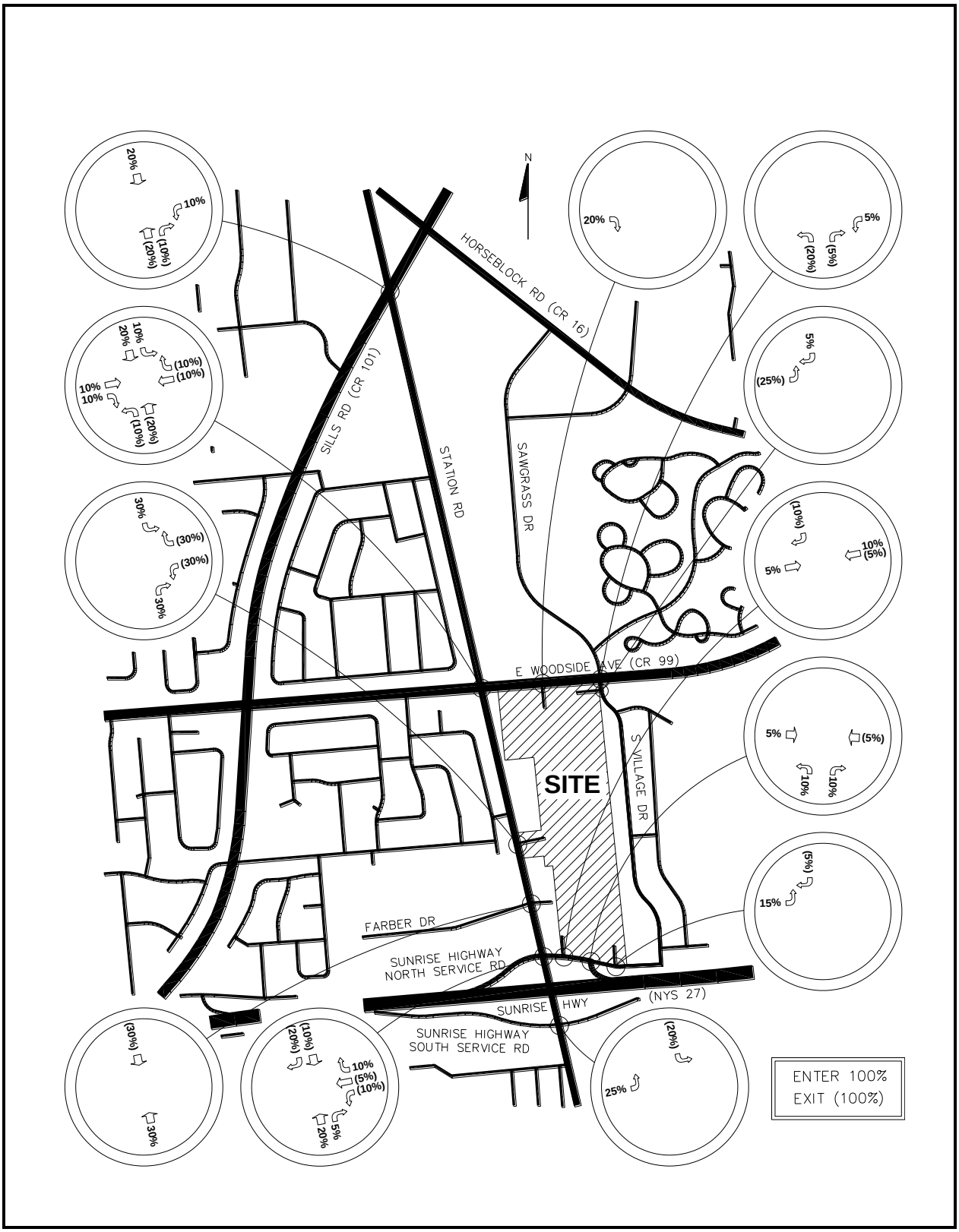


Figure 9: Site Generated Trip Distribution

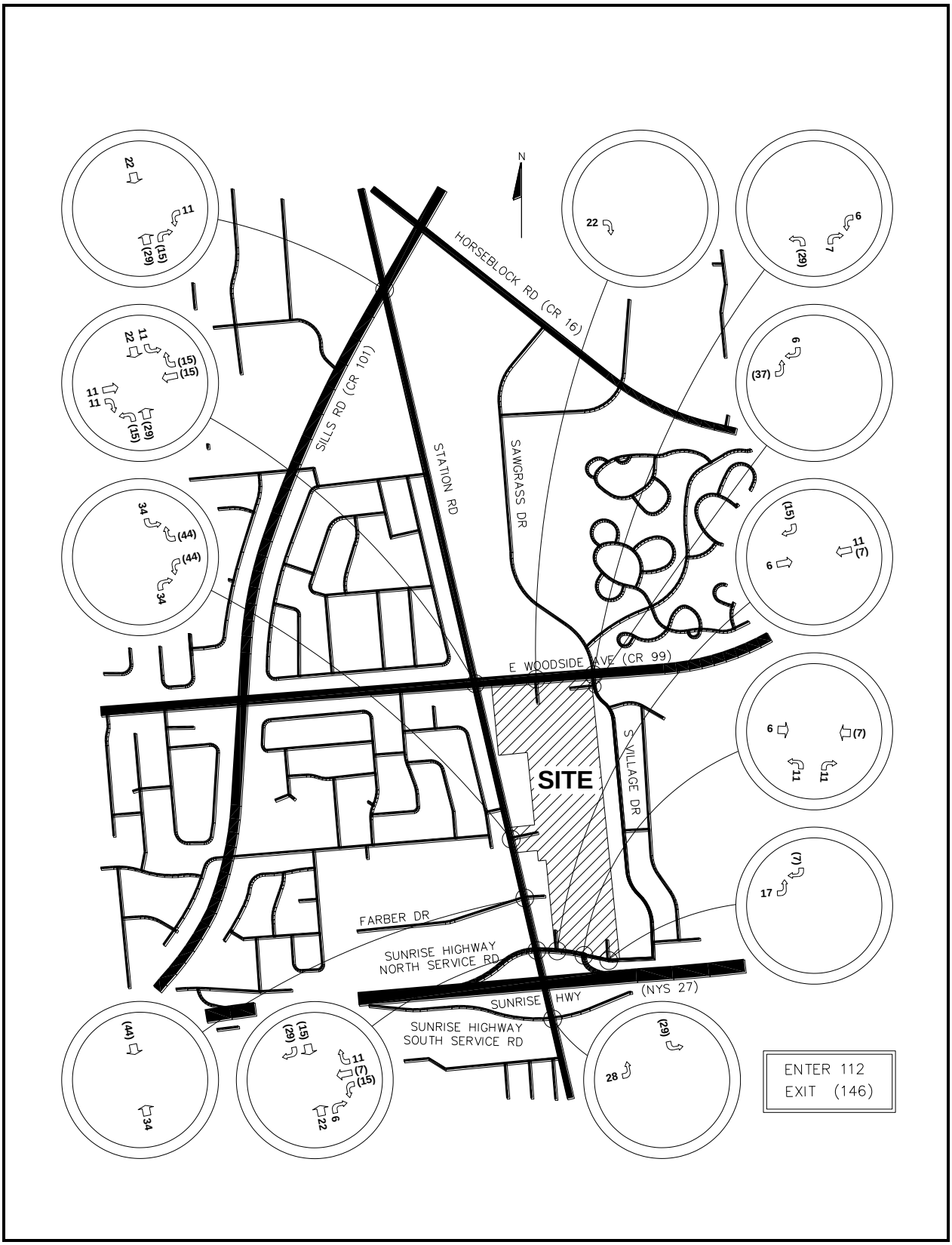


Figure 10: Site Generated AM Peak Hour Traffic Volumes

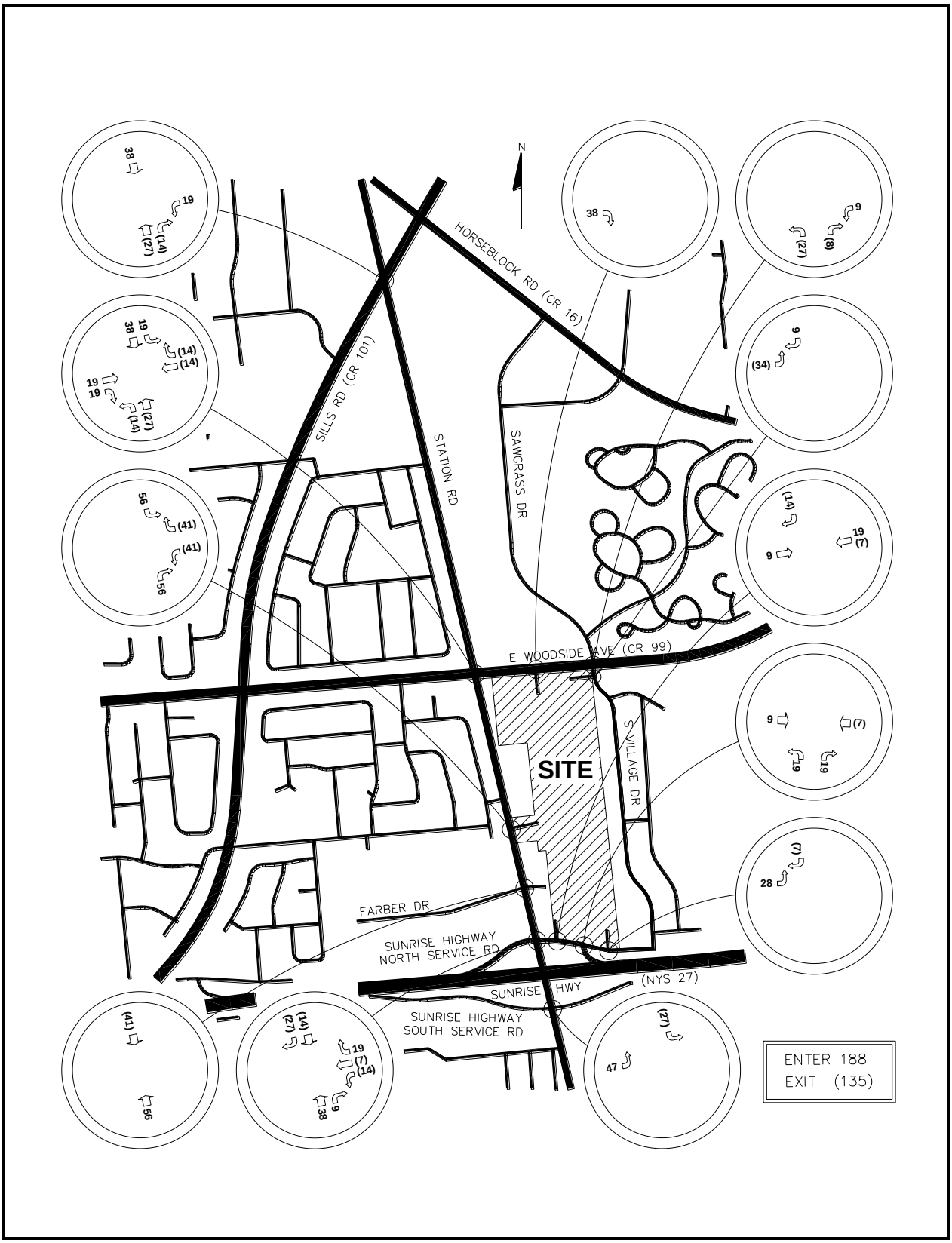


Figure 11: Site Generated PM Peak Hour Traffic Volumes

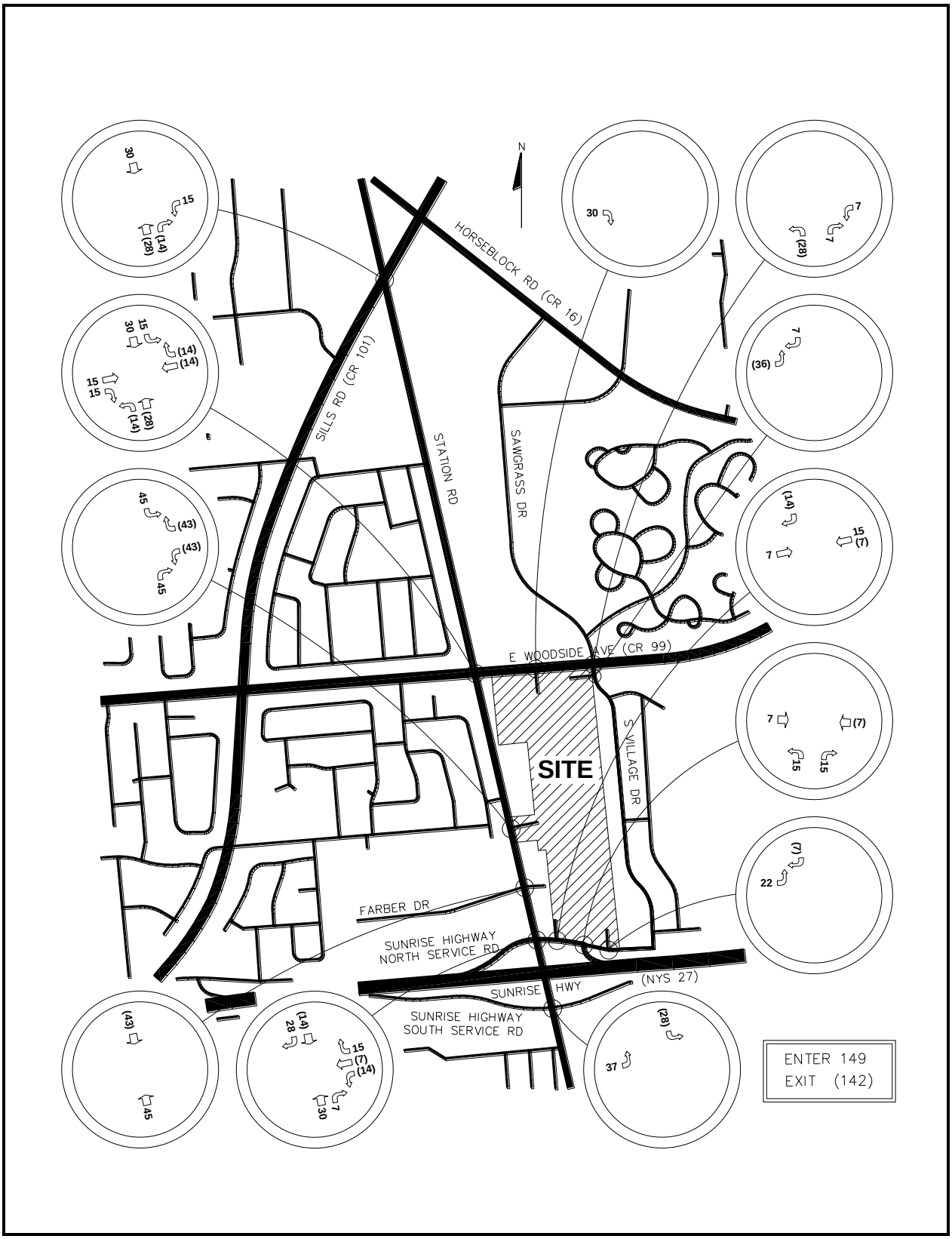


Figure 12: Site Generated Saturday Peak Hour Traffic Volumes

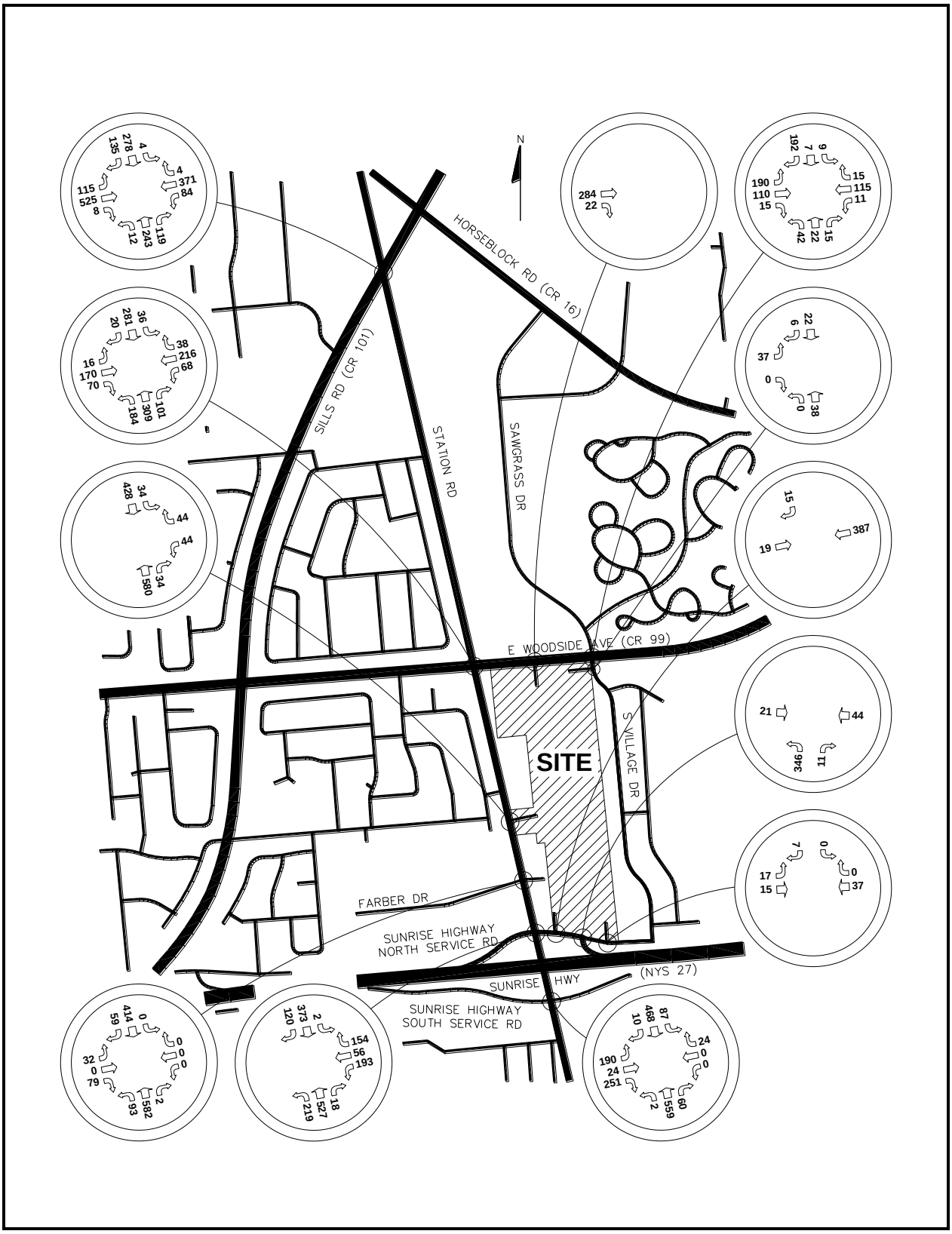


Figure 13: 2020 Build AM Peak Hour Traffic Volumes

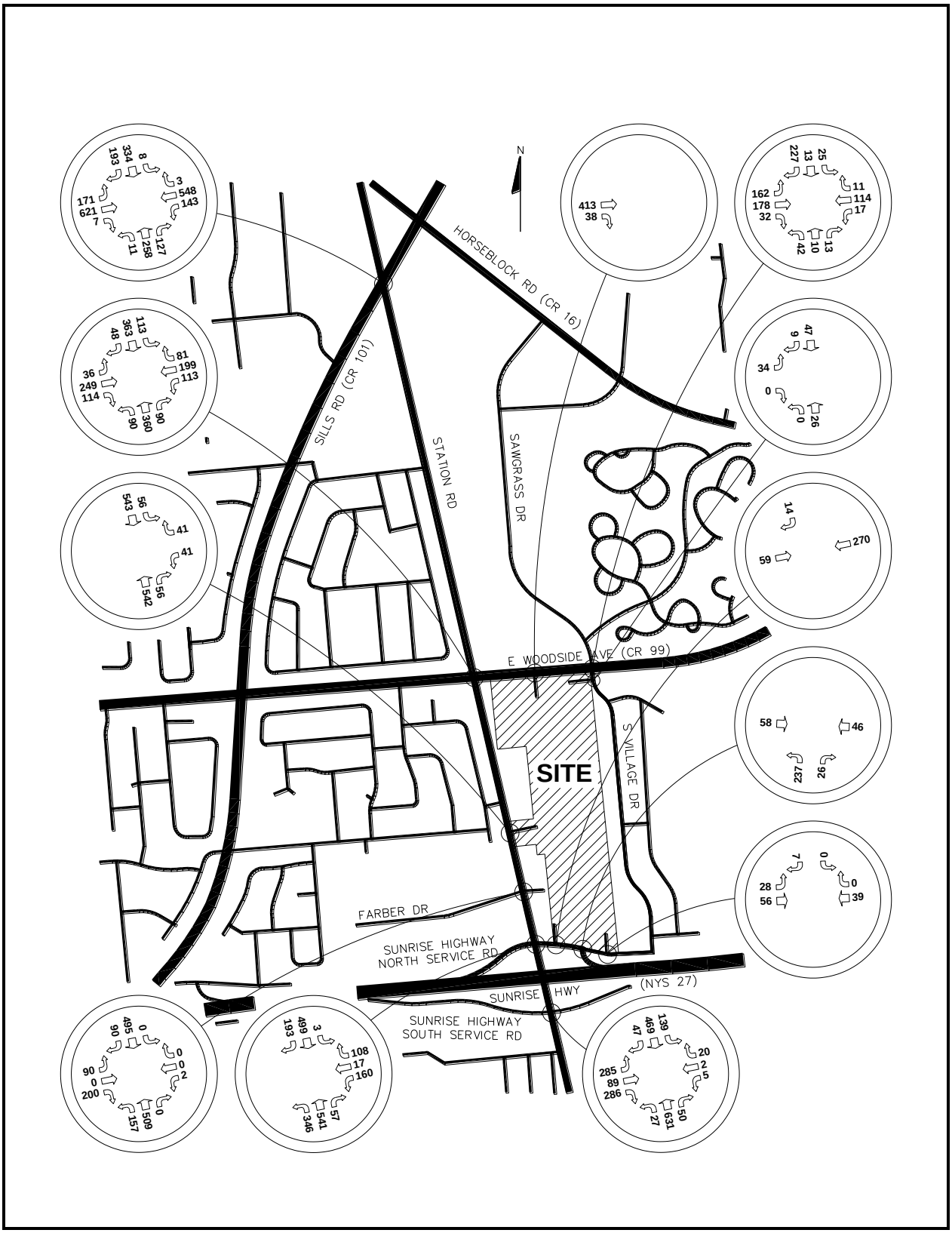


Figure 14: 2020 Build PM Peak Hour Traffic Volumes

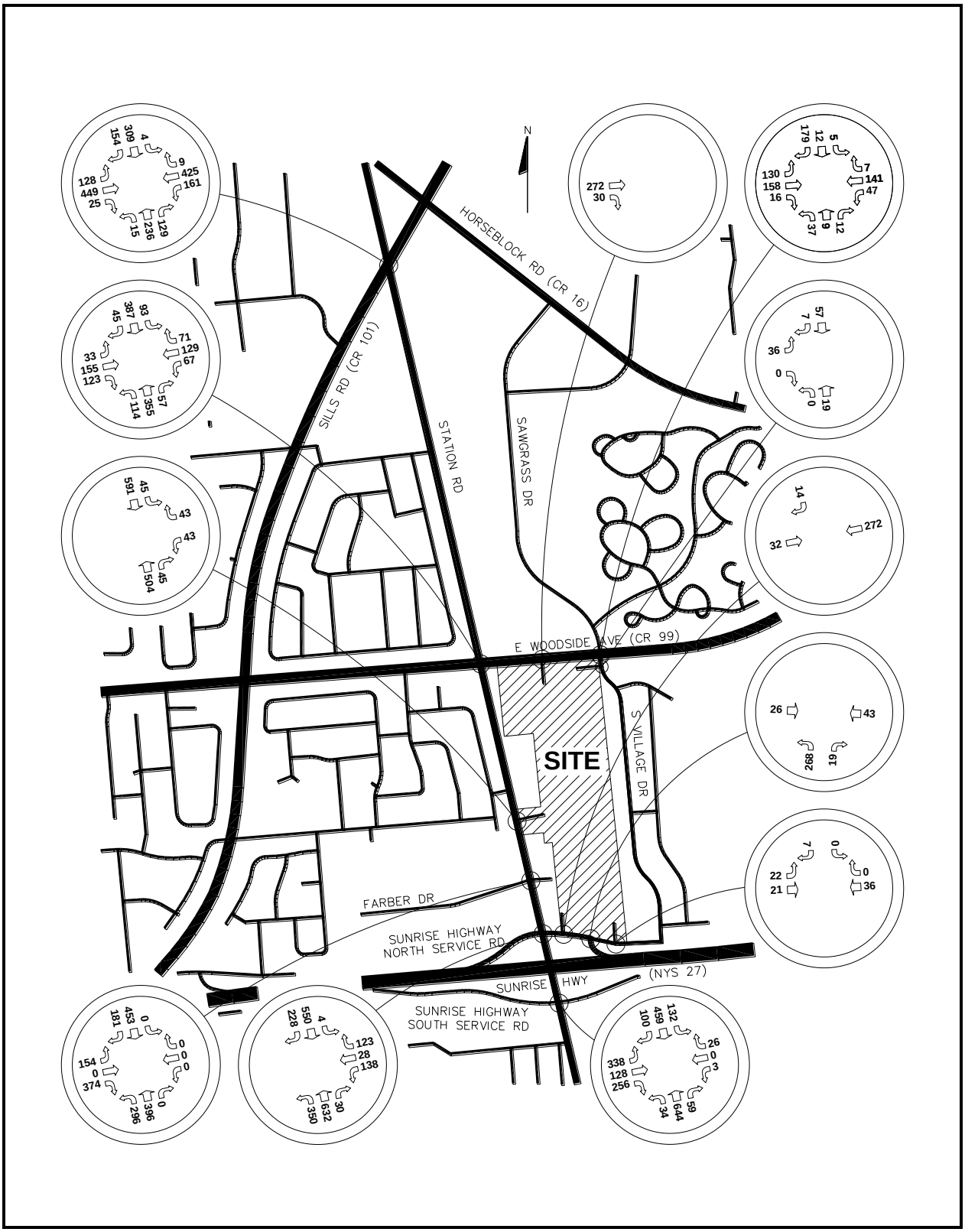


Figure 15: 2020 Build PM Peak Hour Traffic Volumes

TRAFFIC IMPACT ANALYSIS AND MITIGATION

In order to identify the impacts created by the proposed project, capacity analyses were conducted at the study intersections for the No Build and Build Conditions during the weekday AM, PM and Saturday midday peak hours. The results of the capacity analyses for the No Build and Build Conditions were compared to determine the impact that will be created on the study intersections by the proposed project.

Tables 8 through 13 summarize the No Build, Build and Build with Mitigation Conditions for the AM peak hour, PM peak hour and Saturday midday peak hour, respectively. These tables are followed by a detailed description of each intersection, the LOS comparison, and the mitigation employed to maintain an acceptable LOS or achieve No Build LOS.

Table 8: Level of Service Summary – AM Peak Hour Signalized Intersections

			No Build		Build		Build with Mitigation	
Location	Approach	Movt.	Delay Sec/Veh	LOS	Delay Sec/Veh	LOS	Delay Sec/Veh	LOS
Sills Rd (CR 101) at Station Rd	EB	L	57.8	E	57.8	E	-	-
		T	21.9	C	23.6	C	-	-
		R	0.0	A	0.0	A	-	-
	WB	L	43.2	D	48.1	D	-	-
		T	21.5	C	21.5	C	-	-
		R	0.0	A	0.0	A	-	-
	NB	L	19.2	B	19.4	B	-	-
		T	25.4	C	28.3	C	-	-
		R	2.9	A	3.5	A	-	-
	SB	LTR	56.2	E	62.6	E	-	-
		Intersection	33.5	C	34.4	C	-	-
Woodside Ave (CR 99) at Station Rd	EB	L	32.8	C	32.9	C	34.1	C
		T	30.1	C	30.3	C	31.4	C
		R	0.7	A	1.5	A	1.7	A
	WB	L	35.8	D	36.0	D	37.4	D
		T	22.9	C	22.9	C	23.9	C
		R	0.1	A	0.2	A	0.2	A
	NB	L	24.7	C	33.2	C	33.6	C
		TR	41.6	D	72.4	E	53.3	D
	SB	L	14.0	B	15.2	B	14.8	B
		TR	69.1	E	88.7	F	47.9	D
		Intersection	37.8	D	50.4	D	37.4	D

			No Build		Build		Build with Mitigation	
Location	Approach	Movt.	Delay Sec/Veh	LOS	Delay Sec/Veh	LOS	Delay Sec/Veh	LOS
Woodside Ave (CR 99) at Sawgrass Dr/S Village Dr	EB	L	7.6	A	8.2	A	-	-
		T	5.0	A	5.4	A	-	-
		R	0.9	A	0.9	A	-	-
	WB	L	5.2	A	5.5	A	-	-
		T	4.9	A	5.4	A	-	-
		R	0.5	A	0.6	A	-	-
	NB	L	21.7	C	26.2	C	-	-
		TR	18.0	B	15.4	B	-	-
	SB	L	20.7	C	20.0	B	-	-
		T	20.0	B	19.6	B	-	-
		R	9.9	A	8.8	A	-	-
		Intersection	8.1	A	9.1	A	-	-
Farber Dr/Driveway Access at Station Rd	EB	LT	33.1	C	33.1	C	-	-
		R	5.6	A	5.6	A	-	-
	WB	LTR	0.0	A	0.0	A	-	-
	NB	L	3.2	A	3.3	A	-	-
		T	5.2	A	5.5	A	-	-
		R	0.0	A	0.0	A	-	-
	SB	LTR	7.7	A	8.0	A	-	-
		Intersection	7.1	A	7.3	A	-	-
NY 27 North Service Rd at Station Rd	WB	LT	46.7	D	52.1	D	-	-
		R	32.9	C	33.6	C	-	-
	NB	L	7.9	A	8.3	A	-	-
		TR	9.3	A	9.9	A	-	-
	SB	L	12.0	B	12.0	B	-	-
		T	20.2	C	21.1	C	-	-
		R	3.5	A	3.3	A	-	-
		Intersection	18.6	B	19.8	B	-	-
NY 27 South Service Rd at Station Rd	EB	L	49.8	D	75.0	E	54.5	D
		TR	163.3	F	176.1	F	124.3	F
	WB	LTR	0.2	A	0.2	A	0.2	A
	NB	L	8.5	A	8.5	A	9.5	A
		TR	26.1	C	28.4	C	33.3	C
	SB	L	7.7	A	10.5	B	12.9	B
		TR	14.6	B	14.1	B	15.9	B
		Intersection	50.3	D	55.8	E	45.9	D

Notes: LOS = Level of Service, Delay = seconds/vehicle,

Table 9: Level of Service Summary – AM Peak Hour Unsignalized Intersections

			No Build		Build	
Unsignalized Intersections	Approach	Movt.	Delay Sec/Veh	LOS	Delay Sec/Veh	LOS
NY 27 North Service Rd at Westbound Exit 56	NB	LR	11.2	B	11.6	B
South Village Drive at Site Access	EB	LR	-	-	9.0	A
	NB	L	-	-	0.0	A
Station Road at Site Access	WB	L	-	-	31.6	D
		R	-	-	13.2	B
	SB	LT	-	-	1.2	A
NY27 North Service Rd at Site Exit	SB	R	-	-	10.8	B
NY27 North Service Rd at Site Access	EB	LT	-	-	3.9	A
	WB	TR	-	-	0.0	A
	SB	LR	-	-	8.5	A

Notes: LOS = Level of Service, Delay = seconds/vehicle

Table 10: Level of Service Summary – PM Peak Hour Signalized Intersections

			No Build		Build		Build with Mitigation	
Location	Approach	Movt.	Delay Sec/Veh	LOS	Delay Sec/Veh	LOS	Delay Sec/Veh	LOS
Sills Rd (CR 101) at Station Rd	EB	L	52.0	D	56.5	E	52.2	D
		T	26.9	C	29.2	C	29.5	C
		R	0.0	A	0.0	A	0.0	A
	WB	L	54.6	D	55.7	E	48.2	D
		T	28.3	C	28.7	C	28.6	C
		R	0.0	A	0.0	A	0.0	A
	NB	L	17.3	B	17.1	B	18.2	B
		T	22.1	C	21.9	C	22.9	C
		R	5.1	A	5.4	A	5.0	A
	SB	LTR	36.5	D	38.9	D	43.1	D
		Intersection	30.9	C	32.5	C	32.8	C
Woodside Ave (CR 99) at Station Rd	EB	L	38.5	D	39.2	D	37.4	D
		T	34.6	C	35.9	D	34.9	C
		R	2.8	A	4.2	A	4.4	A
	WB	L	41.7	D	43.4	D	51.0	D
		T	25.9	C	26.5	C	27.6	C
		R	1.5	A	2.4	A	2.9	A
	NB	L	16.5	B	18.7	B	16.8	B
		TR	53.0	D	76.1	E	48.2	D
	SB	L	17.7	B	19.4	B	18.9	B
		TR	42.1	D	58.7	E	41.2	D
		Intersection	35.1	D	43.9	D	34.3	C
Woodside Ave (CR 99) at Sawgrass Dr/S Village Dr	EB	L	6.3	A	6.7	A	-	-
		T	4.8	A	5.1	A	-	-
		R	1.8	A	1.7	A	-	-
	WB	L	5.1	A	5.4	A	-	-
		T	4.8	A	5.1	A	-	-
		R	0.3	A	0.1	A	-	-
	NB	L	27.0	C	34.3	C	-	-
		TR	19.4	B	16.2	B	-	-
	SB	L	27.6	C	26.9	C	-	-
		T	24.7	C	24.4	C	-	-
		R	10.9	B	10.1	B	-	-
		Intersection	8.9	A	9.8	A	-	-
Farber Dr/Driveway Access at Station Rd	EB	LT	36.3	D	36.3	D	-	-
		R	10.7	B	12.2	B	-	-
	WB	LTR	25.5	C	25.5	C	-	-
	NB	L	5.3	A	5.4	A	-	-
		T	6.5	A	7.0	A	-	-
		R	0.0	A	0.0	A	-	-
	SB	LTR	11.0	B	11.3	B	-	-
		Intersection	10.7	B	11.0	B	-	-

			No Build		Build		Build with Mitigation	
Location	Approach	Movt.	Delay Sec/Veh	LOS	Delay Sec/Veh	LOS	Delay Sec/Veh	LOS
NY 27 North Service Rd at Station Rd	WB	LT	54.7	D	66.9	E	54.4	D
		R	38.8	D	44.5	D	39.3	D
	NB	L	10.9	B	12.0	B	13.6	B
		TR	6.0	A	6.5	A	7.1	A
	SB	L	11.7	B	12.0	B	12.7	B
		T	19.6	B	20.9	C	23.0	C
		R	3.0	A	3.0	A	3.2	A
		Intersection	16.3	B	18.6	B	18.2	B
NY 27 South Service Rd at Station Rd	EB	L	198.5	F	302.0	F	177.3	F
		TR	362.6	F	362.6	F	223.5	F
	WB	LTR	29.4	C	29.4	C	17.9	B
	NB	L	7.3	A	7.3	A	9.6	A
		TR	22.0	C	22.0	C	30.3	C
	SB	L	10.9	B	16.7	B	16.1	B
		TR	7.8	A	7.8	A	9.2	A
		Intersection	101.6	F	117.1	F	78.2	E

Table 11: Level of Service Summary – PM Peak Hour Unsignalized Intersections

			No Build		Build	
Unsignalized Intersections	Approach	Movt.	Delay Sec/Veh	LOS	Delay Sec/Veh	LOS
NY 27 North Service Rd at Westbound Exit 56	NB	LR	10.7	B	11.2	B
South Village Drive at Site Access	EB	LR	-	-	9.1	A
	NB	L	-	-	0.0	A
Station Road at Site Access	WB	L	-	-	45.3	E
		R	-	-	13.1	B
	SB	LT	-	-	1.8	A
NY27 North Service Rd at Site Exit	SB	R	-	-	10.0	A
NY27 North Service Rd at Site Access	EB	LT	-	-	2.5	A
	WB	TR	-	-	0.0	A
	SB	LR	-	-	8.5	A

Table 12: Level of Service Summary – Saturday Peak Hour Signalized Intersections

			No Build		Build		Build with Mitigation	
Location	Approach	Movt.	Delay Sec/Veh	LOS	Delay Sec/Veh	LOS	Delay Sec/Veh	LOS
Sills Rd (CR 101) at Station Rd	EB	L	52.8	D	59.9	E	37.0	D
		T	22.4	C	22.4	C	26.0	C
		R	0.2	A	0.3	A	0.2	A
	WB	L	65.3	E	116.9	F	47.6	D
		T	22.1	C	22.5	C	24.2	C
		R	0.1	A	0.1	A	0.1	A
	NB	L	17.1	B	17.1	B	16.7	B
		T	20.6	C	20.7	C	21.0	C
		R	2.2	A	2.2	A	4.0	A
	SB	LTR	32.0	C	32.9	C	34.8	C
		Intersection	28.1	C	33.4	C	27.7	C
Woodside Ave (CR 99) at Station Rd	EB	L	31.9	C	32.4	C	33.4	C
		T	29.1	C	29.3	C	30.4	C
		R	2.9	A	3.8	A	4.1	A
	WB	L	33.2	C	33.9	C	35.8	D
		T	22.8	C	22.7	C	26.3	C
		R	0.2	A	0.9	A	1.0	A
	NB	L	16.9	B	18.7	B	17.8	B
		TR	53.5	D	49.5	D	39.2	D
	SB	L	15.0	B	16.0	B	15.0	B
		TR	51.1	D	81.7	F	49.7	D
		Intersection	36.0	D	42.1	D	32.1	C
Woodside Ave (CR 99) at Sawgrass Dr/S Village Dr	EB	L	7.6	A	8.0	A	-	-
		T	6.0	A	6.3	A	-	-
		R	0.6	A	0.6	A	-	-
	WB	L	6.5	A	6.9	A	-	-
		T	6.0	A	6.3	A	-	-
		R	0.0	A	0.0	A	-	-
	NB	L	15.9	B	19.2	B	-	-
		TR	12.9	B	10.7	B	-	-
	SB	L	15.2	B	15.0	B	-	-
		T	15.4	B	15.2	B	-	-
		R	8.1	A	7.4	A	-	-
		Intersection	7.4	A	8.0	A	-	-
Farber Dr/Driveway Access at Station Rd	EB	LT	40.9	D	40.9	D	-	-
		R	12.9	B	13.5	B	-	-
	WB	LTR	0.0	A	0.0	A	-	-
	NB	L	11.9	B	13.0	B	-	-
		T	7.4	A	7.8	A	-	-
		R	0.0	A	0.0	A	-	-
	SB	LTR	17.6	B	19.3	B	-	-
		Intersection	15.7	B	16.6	B	-	-

			No Build		Build		Build with Mitigation	
Location	Approach	Movt.	Delay Sec/Veh	LOS	Delay Sec/Veh	LOS	Delay Sec/Veh	LOS
NY 27 North Service Rd at Station Rd	WB	LT	67.3	E	86.2	F	67.0	E
		R	55.1	E	64.5	E	54.5	D
	NB	L	7.1	A	7.3	A	8.0	A
		TR	5.5	A	5.8	A	6.3	A
	SB	L	10.2	B	10.8	B	11.8	B
		T	15.6	B	16.3	B	17.8	B
		R	2.4	A	2.5	A	2.7	A
		Intersection	16.0	B	18.9	B	17.4	B
NY 27 South Service Rd at Station Rd	EB	L	58.9	E	85.4	F	71.0	E
		TR	67.8	E	67.8	E	57.3	E
	WB	LTR	0.3	A	0.3	A	0.2	A
	NB	L	13.3	B	13.3	B	15.2	B
		TR	47.3	D	47.3	D	51.3	D
	SB	L	44.7	D	85.1	F	54.3	D
		TR	16.0	B	16.0	B	17.0	B
		Intersection	42.7	D	49.7	D	45.2	D

Table 13: Level of Service Summary – Saturday Peak Hour Unsignalized Intersections

			No Build		Build	
Unsignalized Intersections	Approach	Movt.	Delay Sec/Veh	LOS	Delay Sec/Veh	LOS
NY 27 North Service Rd at Westbound Exit 56	NB	LR	10.6	B	11.1	B
South Village Drive at Site Access	EB	LR	-	-	9.1	A
	NB	L	-	-	0.0	A
Station Road at Site Access	WB	L	-	-	41.5	E
		R	-	-	12.6	B
	SB	LT	-	-	1.3	A
NY27 North Service Rd at Site Exit	SB	R	-	-	10.0	A
NY27 North Service Rd at Site Access	EB	LT	-	-	3.7	A
	WB	TR	-	-	0.0	A
	SB	LR	-	-	8.5	A

Sills Road (CR 101) at Station Road

In the No Build Condition, the signalized intersection of Sills Road (CR 101) at Station Road is projected to operate at LOS C during all peak hours, from an overall perspective. During the AM and Saturday peak hours, all individual movements will operate at LOS E or better. During the PM peak hour, all individual movements will operate at LOS D or better. With the construction of the proposed project, individual movements of this intersection will experience changes in LOS during the PM and Saturday peak periods while the overall LOS remain the same during all peak periods. The PM and Saturday peak period impacts were mitigated by performing timing adjustments while maintaining the current cycle lengths. Upon implementation of these mitigation measures LOS will return to No Build levels.

Woodside Avenue (CR 99) at Station Road

In the No Build Condition, the signalized intersection of Woodside Avenue (CR 99) at Station Road is projected to operate at LOS D during all peak hours, from an overall perspective. During the PM and Saturday midday peak hours all movement will operate at LOS D or better. During the AM peak hour all movements will operate at LOS E or better. With the construction of the

proposed project, the individual movements of this intersection will experience changes in LOS during all peak hours, but overall LOS will remain the same. The anticipated peak period impacts were mitigated by performing timing adjustments while maintaining the current cycle lengths. Upon implementation of these mitigation measures LOS will return to No Build levels.

Woodside Avenue (CR 99) at Sawgrass Drive/S Village Drive

In the No Build Condition, the signalized intersection of Woodside Avenue (CR 99) at Sawgrass Drive/S Village Drive is projected to operate at LOS A during all peak hours, from an overall perspective and individual movements will operate at LOS C of better. With the construction of the proposed project, the intersection will continue to operate at No Build conditions during the analyzed peak periods. Therefore, no significant impacts are created, and no mitigation measures are proposed at this intersection.

Farber Drive/Driveway at Station Road

In the No Build Condition, the signalized intersection of Farber Drive/Driveway at Station Road is projected to operate at LOS A during the weekday AM peak hour and at LOS B during the PM and Saturday peak hours. With the construction of the proposed project, the intersection will continue to operate at No Build conditions during the analyzed peak periods. Therefore, no significant impacts are created, and no mitigation measures are proposed at this intersection.

NY27 North Service Road at Station Road

In the No Build Condition, the signalized intersection of NY27 North Service Road at Station Road is projected to operate at LOS B during all peak hours, from an overall perspective. During the AM and PM peak hours individual movements will operate at LOS D or better. During the Saturday peak hour individual movements will operate at LOS E or better. With the construction of the proposed project, the intersection will continue to operate at No Build conditions during the AM peak hour but changes in LOS for the westbound left-turn/through movement during the PM and Saturday peak hours are anticipated. During these periods, impacts were mitigated by modifying signal timing while maintaining the current cycle length. Upon implementation of these mitigation measures LOS and delay will return to No Build conditions.

NY27 South Service Road at Station Road

In the No Build Condition, the signalized intersection of NY27 South Service Road at Station Road is projected to operate at LOS D during the AM and Saturday peak hours and at LOS F during the PM peak hour, from an overall perspective. During the AM and PM peak hours individual movements will operate at LOS F or better. During the Saturday peak hour individual movements will operate at LOS E or better. With the construction of the proposed project, the individual movements of this intersection will experience changes in LOS during all peak hours and overall LOS change only during the AM peak hour. The anticipated impacts during the AM and PM peak periods were mitigated by performing timing adjustments while maintaining the current cycle length. During the Saturday peak period, impacts were mitigated by increasing the cycle length to 80 seconds (10 second increase) and optimizing split timings. Upon implementation of these mitigation measures LOS will be returned to No Build conditions.

NY 27 North Service Road at NY 27 Westbound Exit 56 Ramp

In the No Build condition, the stop-controlled northbound approach (NY 27 Westbound Exit 56 Ramp) is anticipated to operate at LOS B during all peak hours studied. After the completion of the project, this approach will continue to operate at No Build LOS with minimal increase in delay.

S Village Drive at Site Access

After the completion of the proposed project, the stop-controlled eastbound site access approach is anticipated to operate at LOS A during all peak hours. The northbound left-turn movement is anticipated to operate at LOS A during all peak hours.

Station Road at Site Access

After the construction of the proposed project, the stop-controlled westbound left-turn movement is anticipated to operate at LOS D, E and E during the AM, PM and Saturday peak hours respectively. The stop-controlled westbound right-turn movement is anticipated to operate at LOS B during all peak hours. The southbound left-turn movement is anticipated to operate at LOS A during all peak hours.

NY 27 North Service Road at Site Exit

After the construction of the proposed project, the stop-controlled southbound right-turn movement of the site exit is anticipated to operate at LOS B during the AM peak hour and at LOS A during the PM and Saturday peak hours.

NY 27 North Service Road at Site Access

After the construction of the proposed project, the eastbound left-turn movement is anticipated to operate at LOS A during all peak hours. The stop-controlled southbound approach is anticipated to operate at LOS A during all peak hours.

CONCLUSION

Nelson & Pope has investigated the potential traffic impacts associated with the proposed mixed-use development to be located on the east side of Station Road spanning from Woodside Avenue (CR 99) to NY27 North Service Road, Suffolk County, New York. Access to the site will be provided via five (5) driveways with a mix of full access and restricted access. The site is currently undeveloped. The following is a summary of this investigation and the findings thereof:

1. The following intersections were studied:
    - Sills Road (CR 101) at Station Road
    - Woodside Avenue (CR 99) at Station Road
    - Woodside Avenue (CR 99) at Sawgrass Drive/S Village Dr
    - Farber Drive at Station Road
    - NY27 North Service Road at Station Road
    - NY27 South Service Road at Station Road
    - NY27 North Service Road at NY27 Exit 56 Westbound Ramp

2. Existing traffic volumes were counted in April 2017. Future No Build traffic volumes were determined by applying a 2.0% NYSDOT annual growth factor to the existing traffic volumes projected to 2020, the anticipated build year. The site-generated traffic was estimated and distributed to the study intersections and then added to the No Build traffic volumes to generate the future Build traffic volumes.

3. The proposed mixed-use development generate is anticipated generate 258 new trips (112 entering and 146 exiting) during the weekday AM peak hour, 322 new trips (188 entering and 135 exiting) during the weekday PM peak hour and 291 new trips (149 entering and 142 exiting) during the Saturday midday peak hour.

4. Capacity analyses were conducted at all study intersections during the weekday AM, weekday PM and Saturday midday peak hours for the 2017 Existing Condition, 2020 No Build Condition and 2020 Build Condition.

5. The signalized intersections of Woodside Avenue (CR 99) at Sawgrass Drive/S Village Drive and Farber Drive/Driveway at Station Road are projected to continue operating at No Build LOS during all peak hours.
6. Impacts associated with the proposed project will be mitigated at the remaining signalized intersections by performing timing adjustments. A modification of the cycle length and timing modifications are proposed at the intersection of the NYS 27 South Service Road at Station Road during the Saturday midday peak hour only. Upon implementation of the mitigation measures detailed in the body of the report, these intersections will return to operating at No Build LOS.
7. With the construction of the proposed project, all but one of the individual turning movements for the site driveways are anticipated to operate at LOS B or better. The westbound left-turn movement of the Station Road access is anticipated to operate at LOS D during the AM peak and at LOS E during the PM and Saturday peak periods.

Based on the results of the Traffic Impact Study as detailed in the body of this report, it is the professional opinion of Nelson & Pope that, constructing the proposed mixed-use PDD with the implementation of the proposed signal timing modifications will not result in any adverse traffic impacts in the study area.

CREST TOWN CENTER

NORTH BELLPORT

TOWN OF BROOKHAVEN

APPENDIX

January 2018
Revised June 2018

N & P JOB NO. 16212

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Appendix A: Traffic Volume Data

Distribution Sheets

NELSON & POPE

AM PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

GROWTH FACTOR:	2.00%
NO. OF YEARS:	3
GROWTH RATE:	1.062
SEASONAL ADJUSTMENT FACTOR	1.000

LOCATION	DIR	MVMT	EXISTING VOLUME	SEASONALLY ADJUSTED VOLUMES	AMBIENT NO BUILD VOLUME
	NB	LEFT	11	11	12
CR 101 (SILLS ROAD)		THROUGH	201	201	214
AT		RIGHT	97	97	104
STATION ROAD	SB	LEFT	3	3	4
		THROUGH	241	241	256
1		RIGHT	127	127	135
	EB	LEFT	108	108	115
		THROUGH	494	494	525
		RIGHT	7	7	8
	WB	LEFT	68	68	73
		THROUGH	349	349	371
		RIGHT	3	3	4
	NB	LEFT	159	159	169
CR 99 (E WOODSIDE AVENUE)		THROUGH	263	263	280
AT		RIGHT	95	95	101
STATION ROAD	SB	LEFT	23	23	25
		THROUGH	243	243	259
2		RIGHT	18	18	20
	EB	LEFT	15	15	16
		THROUGH	149	149	159
		RIGHT	55	55	59
	WB	LEFT	64	64	68
		THROUGH	189	189	201
		RIGHT	21	21	23
	NB	LEFT	11	12	13
CR 99 (E WOODSIDE AVENUE)		THROUGH	18	20	22
AT		RIGHT	6	7	8
SAWGRASS DR/S VILLAGE DR	SB	LEFT	7	8	9
		THROUGH	5	6	7
3		RIGHT	166	180	192
	EB	LEFT	164	178	190
		THROUGH	95	103	110
		RIGHT	12	14	15
	WB	LEFT	3	4	5
		THROUGH	99	108	115
		RIGHT	12	14	15
	NB	LEFT	87	87	93
FARBER DRIVE/DRIVEWAY		THROUGH	516	516	548
AT		RIGHT	1	1	2
STATION ROAD	SB	LEFT	0	0	0
		THROUGH	348	348	370
4		RIGHT	55	55	59
	EB	LEFT	30	30	32
		THROUGH	0	0	0
		RIGHT	74	74	79
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	206	206	219
NYS 27 NORTH SERVICE ROAD		THROUGH	475	475	505
AT		RIGHT	11	11	12
STATION ROAD	SB	LEFT	1	1	2
		THROUGH	337	337	358
5		RIGHT	85	85	91
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	167	167	178
		THROUGH	46	46	49
		RIGHT	134	134	143
	NB	LEFT	1	1	2
NYS 27 SOUTH SERVICE ROAD		THROUGH	526	526	559
AT		RIGHT	56	56	60
STATION ROAD	SB	LEFT	54	54	58
		THROUGH	440	440	468
6		RIGHT	9	9	10
	EB	LEFT	152	152	162
		THROUGH	22	22	24
		RIGHT	236	236	251
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	22	22	24

NELSON & POPE

AM PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

GROWTH FACTOR:	2.00%
NO. OF YEARS:	3
GROWTH RATE:	1.062
SEASONAL ADJUSTMENT FACTOR	1.000

LOCATION	DIR	MVMT	EXISTING VOLUME	SEASONALLY ADJUSTED VOLUMES	AMBIENT NO BUILD VOLUME
	NB	LEFT	315	315	335
NYS 27 EXIT 56 WESTBOUND RAMP		THROUGH	0	0	0
AT		RIGHT	0	0	0
NYS 27 NORTH SERVICE ROAD	SB	LEFT	0	0	0
		THROUGH	0	0	0
7		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	14	14	15
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	34	34	37
		RIGHT	0	0	0
	NB	LEFT	0	0	0
S VILLAGE DRIVE		THROUGH	35	35	38
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	20	20	22
8		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	0	0	0
CR 99 (E WOODSIDE AVENUE)		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	0	0	0
9		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	267	267	284
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	274	274	291
		RIGHT	0	0	0
	NB	LEFT	0	0	0
STATION ROAD		THROUGH	546	546	580
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	403	403	428
10		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	0	0	0
NYS 27 NORTH SERVICE ROAD		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE EXIT	SB	LEFT	0	0	0
		THROUGH	0	0	0
11		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	12	12	13
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	347	347	369
		RIGHT	0	0	0
	NB	LEFT	0	0	0
NYS 27 NORTH SERVICE ROAD		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	0	0	0
12		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	14	14	15
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	34	34	37
		RIGHT	0	0	0

NELSON & POPE

AM PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

OTHER
PLANNED
PROJECTS

	VOL
ENTER	0
EXIT	0
TOTAL	0

SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS

LOCATION	DIR	MVMT	%EN	%EX	VOL	SUBTOTAL VOL
CR 101 (SILLS ROAD) AT STATION ROAD 1	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
CR 99 (E WOODSIDE AVENUE) AT STATION ROAD 2	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
CR 99 (E WOODSIDE AVENUE) AT SAWGRASS DR/S VILLAGE DR 3	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
FARBER DRIVE/DRIVEWAY AT STATION ROAD 4	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
NYS 27 NORTH SERVICE ROAD AT STATION ROAD 5	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
NYS 27 SOUTH SERVICE ROAD AT STATION ROAD 6	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0

NELSON & POPE

AM PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

OTHER
PLANNED
PROJECTS

	VOL
ENTER	0
EXIT	0
TOTAL	0

SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS

LOCATION	DIR	MVMT	%EN	%EX	VOL	SUBTOTAL VOL
NYS 27 EXIT 56 WESTBOUND RAMP AT NYS 27 NORTH SERVICE ROAD 7	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
S VILLAGE DRIVE AT SITE ACCESS 8	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
CR 99 (E WOODSIDE AVENUE) AT SITE ACCESS 9	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
STATION ROAD AT SITE ACCESS 10	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
NYS 27 NORTH SERVICE ROAD AT SITE EXIT 11	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
NYS 27 NORTH SERVICE ROAD AT SITE ACCESS 12	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0

NELSON & POPE

AM PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

LOCATION	DIR	MVMT	AMBIENT NO BUILD VOLUME	SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS	SUBTOTAL NO BUILD VOLUME
	NB	LEFT	12	0	12
CR 101 (SILLS ROAD)		THROUGH	214	0	214
AT		RIGHT	104	0	104
STATION ROAD	SB	LEFT	4	0	4
		THROUGH	256	0	256
1		RIGHT	135	0	135
	EB	LEFT	115	0	115
		THROUGH	525	0	525
		RIGHT	8	0	8
	WB	LEFT	73	0	73
		THROUGH	371	0	371
		RIGHT	4	0	4
	NB	LEFT	169	0	169
CR 99 (E WOODSIDE AVENUE)		THROUGH	280	0	280
AT		RIGHT	101	0	101
STATION ROAD	SB	LEFT	25	0	25
		THROUGH	259	0	259
2		RIGHT	20	0	20
	EB	LEFT	16	0	16
		THROUGH	159	0	159
		RIGHT	59	0	59
	WB	LEFT	68	0	68
		THROUGH	201	0	201
		RIGHT	23	0	23
	NB	LEFT	13	0	13
CR 99 (E WOODSIDE AVENUE)		THROUGH	22	0	22
AT		RIGHT	8	0	8
SAWGRASS DR/S VILLAGE DR	SB	LEFT	9	0	9
		THROUGH	7	0	7
3		RIGHT	192	0	192
	EB	LEFT	190	0	190
		THROUGH	110	0	110
		RIGHT	15	0	15
	WB	LEFT	5	0	5
		THROUGH	115	0	115
		RIGHT	15	0	15
	NB	LEFT	93	0	93
FARBER DRIVE/DRIVEWAY		THROUGH	548	0	548
AT		RIGHT	2	0	2
STATION ROAD	SB	LEFT	0	0	0
		THROUGH	370	0	370
4		RIGHT	59	0	59
	EB	LEFT	32	0	32
		THROUGH	0	0	0
		RIGHT	79	0	79
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	219	0	219
NYS 27 NORTH SERVICE ROAD		THROUGH	505	0	505
AT		RIGHT	12	0	12
STATION ROAD	SB	LEFT	2	0	2
		THROUGH	358	0	358
5		RIGHT	91	0	91
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	178	0	178
		THROUGH	49	0	49
		RIGHT	143	0	143
	NB	LEFT	2	0	2
NYS 27 SOUTH SERVICE ROAD		THROUGH	559	0	559
AT		RIGHT	60	0	60
STATION ROAD	SB	LEFT	58	0	58
		THROUGH	468	0	468
6		RIGHT	10	0	10
	EB	LEFT	162	0	162
		THROUGH	24	0	24
		RIGHT	251	0	251
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	24	0	24

NELSON & POPE

AM PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

LOCATION	DIR	MVMT	AMBIENT NO BUILD VOLUME	SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS	SUBTOTAL NO BUILD VOLUME
NYS 27 EXIT 56 WESTBOUND RAMP AT NYS 27 NORTH SERVICE ROAD 7	NB	LEFT	335	0	335
		THROUGH	0	0	0
		RIGHT	0	0	0
	SB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	15	0	15
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	37	0	37
		RIGHT	0	0	0
S VILLAGE DRIVE AT SITE ACCESS 8	NB	LEFT	0	0	0
		THROUGH	38	0	38
		RIGHT	0	0	0
	SB	LEFT	0	0	0
		THROUGH	22	0	22
		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
CR 99 (E WOODSIDE AVENUE) AT SITE ACCESS 9	NB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	SB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	284	0	284
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	291	0	291
		RIGHT	0	0	0
STATION ROAD AT SITE ACCESS 10	NB	LEFT	0	0	0
		THROUGH	580	0	580
		RIGHT	0	0	0
	SB	LEFT	0	0	0
		THROUGH	428	0	428
		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
NYS 27 NORTH SERVICE ROAD AT SITE EXIT 11	NB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	SB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	13	0	13
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	369	0	369
		RIGHT	0	0	0
NYS 27 NORTH SERVICE ROAD AT SITE ACCESS 12	NB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	SB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	15	0	15
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	37	0	37
		RIGHT	0	0	0

NELSON & POPE

AM PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

	VOL
ENTER	112
EXIT	146
TOTAL	258

LOCATION	DIR	MVMT	%EN	%EX	CREST TOWN CENTER 1 VOL	SUBTOTAL TRAFFIC GENERATED SUBTOTAL VOL
CR 101 (SILLS ROAD) AT STATION ROAD 1	NB	LEFT			0	0
		THROUGH		20	29	29
		RIGHT		10	15	15
	SB	LEFT			0	0
		THROUGH	20		22	22
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT	10		11	11
		THROUGH			0	0
		RIGHT			0	0
CR 99 (E WOODSIDE AVENUE) AT STATION ROAD 2	NB	LEFT		10	15	15
		THROUGH		20	29	29
		RIGHT			0	0
	SB	LEFT	10		11	11
		THROUGH	20		22	22
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH	10		11	11
		RIGHT	10		11	11
	WB	LEFT			0	0
		THROUGH		10	15	15
		RIGHT		10	15	15
CR 99 (E WOODSIDE AVENUE) AT SAWGRASS DR/S VILLAGE DR 3	NB	LEFT		20	29	29
		THROUGH			0	0
		RIGHT		5	7	7
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT	5		6	6
		THROUGH			0	0
		RIGHT			0	0
FARBER DRIVE/DRIVEWAY AT STATION ROAD 4	NB	LEFT			0	0
		THROUGH	30		34	34
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH		30	44	44
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
NYS 27 NORTH SERVICE ROAD AT STATION ROAD 5	NB	LEFT			0	0
		THROUGH	20		22	22
		RIGHT	5		6	6
	SB	LEFT			0	0
		THROUGH		10	15	15
		RIGHT		20	29	29
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT		10	15	15
		THROUGH		5	7	7
		RIGHT	10		11	11
NYS 27 SOUTH SERVICE ROAD AT STATION ROAD 6	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT		20	29	29
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT	25		28	28
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0

NELSON & POPE

AM PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

					CREST TOWN CENTER	SUBTOTAL TRAFFIC GENERATED
					VOL	
				ENTER	112	
				EXIT	146	
				TOTAL	258	
LOCATION	**DIR**	**MVMT**	**%EN**	**%EX**	**1 VOL**	SUBTOTAL VOL
NYS 27 EXIT 56 WESTBOUND RAMP AT NYS 27 NORTH SERVICE ROAD 7	NB	LEFT	10		11	11
		THROUGH			0	0
		RIGHT	10		11	11
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH	5		6	6
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH		5	7	7
		RIGHT			0	0
S VILLAGE DRIVE AT SITE ACCESS 8	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT	5		6	6
	EB	LEFT		25	37	37
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
CR 99 (E WOODSIDE AVENUE) AT SITE ACCESS 9	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT	20		22	22
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
STATION ROAD AT SITE ACCESS 10	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT	30		34	34
	SB	LEFT	30		34	34
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT		30	44	44
		THROUGH			0	0
		RIGHT		30	44	44
NYS 27 NORTH SERVICE ROAD AT SITE EXIT 11	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT		10	15	15
	EB	LEFT			0	0
		THROUGH	5		6	6
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH	10	5	18	18
		RIGHT			0	0
NYS 27 NORTH SERVICE ROAD AT SITE ACCESS 12	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT		5	7	7
	EB	LEFT	15		17	17
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0

NELSON & POPE

AM PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

LOCATION	DIR	MVMT	SUBTOTAL NO BUILD VOLUME	TRAFFIC GENERATED BY PROPOSED PROJECT	TOTAL BUILD VOLUME
	NB	LEFT	12	0	12
CR 101 (SILLS ROAD)		THROUGH	214	29	243
AT		RIGHT	104	15	119
STATION ROAD	SB	LEFT	4	0	4
		THROUGH	256	22	278
1		RIGHT	135	0	135
	EB	LEFT	115	0	115
		THROUGH	525	0	525
		RIGHT	8	0	8
	WB	LEFT	73	11	84
		THROUGH	371	0	371
		RIGHT	4	0	4
	NB	LEFT	169	15	184
CR 99 (E WOODSIDE AVENUE)		THROUGH	280	29	309
AT		RIGHT	101	0	101
STATION ROAD	SB	LEFT	25	11	36
		THROUGH	259	22	281
2		RIGHT	20	0	20
	EB	LEFT	16	0	16
		THROUGH	159	11	170
		RIGHT	59	11	70
	WB	LEFT	68	0	68
		THROUGH	201	15	216
		RIGHT	23	15	38
	NB	LEFT	13	29	42
CR 99 (E WOODSIDE AVENUE)		THROUGH	22	0	22
AT		RIGHT	8	7	15
SAWGRASS DR/S VILLAGE DR	SB	LEFT	9	0	9
		THROUGH	7	0	7
3		RIGHT	192	0	192
	EB	LEFT	190	0	190
		THROUGH	110	0	110
		RIGHT	15	0	15
	WB	LEFT	5	6	11
		THROUGH	115	0	115
		RIGHT	15	0	15
	NB	LEFT	93	0	93
FARBER DRIVE/DRIVEWAY		THROUGH	548	34	582
AT		RIGHT	2	0	2
STATION ROAD	SB	LEFT	0	0	0
		THROUGH	370	44	414
4		RIGHT	59	0	59
	EB	LEFT	32	0	32
		THROUGH	0	0	0
		RIGHT	79	0	79
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	219	0	219
NYS 27 NORTH SERVICE ROAD		THROUGH	505	22	527
AT		RIGHT	12	6	18
STATION ROAD	SB	LEFT	2	0	2
		THROUGH	358	15	373
5		RIGHT	91	29	120
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	178	15	193
		THROUGH	49	7	56
		RIGHT	143	11	154
	NB	LEFT	2	0	2
NYS 27 SOUTH SERVICE ROAD		THROUGH	559	0	559
AT		RIGHT	60	0	60
STATION ROAD	SB	LEFT	58	29	87
		THROUGH	468	0	468
6		RIGHT	10	0	10
	EB	LEFT	162	28	190
		THROUGH	24	0	24
		RIGHT	251	0	251
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	24	0	24

NELSON & POPE

AM PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

LOCATION	DIR	MVMT	SUBTOTAL NO BUILD VOLUME	TRAFFIC GENERATED BY PROPOSED PROJECT	TOTAL BUILD VOLUME
	NB	LEFT	335	11	346
NYS 27 EXIT 56 WESTBOUND RAMP		THROUGH	0	0	0
AT		RIGHT	0	11	11
NYS 27 NORTH SERVICE ROAD	SB	LEFT	0	0	0
		THROUGH	0	0	0
7		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	15	6	21
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	37	7	44
		RIGHT	0	0	0
				0	
	NB	LEFT	0	0	0
S VILLAGE DRIVE		THROUGH	38	0	38
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	22	0	22
8		RIGHT	0	6	6
	EB	LEFT	0	37	37
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	0	0	0
CR 99 (E WOODSIDE AVENUE)		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	0	0	0
9		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	284	0	284
		RIGHT	0	22	22
	WB	LEFT	0	0	0
		THROUGH	291	0	291
		RIGHT	0	0	0
	NB	LEFT	0	0	0
STATION ROAD		THROUGH	580	0	580
AT		RIGHT	0	34	34
SITE ACCESS	SB	LEFT	0	34	34
		THROUGH	428	0	428
10		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	44	44
		THROUGH	0	0	0
		RIGHT	0	44	44
			0	0	0
	NB	LEFT	0	0	0
NYS 27 NORTH SERVICE ROAD		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE EXIT	SB	LEFT	0	0	0
		THROUGH	0	0	0
11		RIGHT	0	15	15
	EB	LEFT	0	0	0
		THROUGH	13	6	19
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	369	18	387
		RIGHT	0	0	0
			0	0	0
	NB	LEFT	0	0	0
NYS 27 NORTH SERVICE ROAD		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	0	0	0
12		RIGHT	0	7	7
	EB	LEFT	0	17	17
		THROUGH	15	0	15
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	37	0	37
		RIGHT	0	0	0

NELSON & POPE

PM PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

GROWTH FACTOR:	2.00%
NO. OF YEARS:	3
GROWTH RATE:	1.062
SEASONAL ADJUSTMENT FACTOR	1.000

LOCATION	DIR	MVMT	EXISTING VOLUME	SEASONALLY ADJUSTED VOLUMES	AMBIENT NO BUILD VOLUME
	NB	LEFT	10	10	11
CR 101 (SILLS ROAD)		THROUGH	217	217	231
AT		RIGHT	106	106	113
STATION ROAD	SB	LEFT	7	7	8
		THROUGH	278	278	296
1		RIGHT	181	181	193
	EB	LEFT	161	161	171
		THROUGH	584	584	621
		RIGHT	6	6	7
	WB	LEFT	116	116	124
		THROUGH	516	516	548
		RIGHT	2	2	3
	NB	LEFT	71	71	76
CR 99 (E WOODSIDE AVENUE)		THROUGH	313	313	333
AT		RIGHT	84	84	90
STATION ROAD	SB	LEFT	88	88	94
		THROUGH	306	306	325
2		RIGHT	45	45	48
	EB	LEFT	33	33	36
		THROUGH	216	216	230
		RIGHT	89	89	95
	WB	LEFT	106	106	113
		THROUGH	174	174	185
		RIGHT	63	63	67
	NB	LEFT	12	14	15
CR 99 (E WOODSIDE AVENUE)		THROUGH	8	9	10
AT		RIGHT	4	5	6
SAWGRASS DR/S VILLAGE DR	SB	LEFT	21	23	25
		THROUGH	11	12	13
3		RIGHT	196	213	227
	EB	LEFT	140	152	162
		THROUGH	154	167	178
		RIGHT	27	30	32
	WB	LEFT	6	7	8
		THROUGH	98	107	114
		RIGHT	9	10	11
	NB	LEFT	147	147	157
FARBER DRIVE/DRIVEWAY		THROUGH	426	426	453
AT		RIGHT	0	0	0
STATION ROAD	SB	LEFT	0	0	0
		THROUGH	427	427	454
4		RIGHT	84	84	90
	EB	LEFT	84	84	90
		THROUGH	0	0	0
		RIGHT	188	188	200
	WB	LEFT	1	1	2
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	325	325	346
NYS 27 NORTH SERVICE ROAD		THROUGH	473	473	503
AT		RIGHT	45	45	48
STATION ROAD	SB	LEFT	2	2	3
		THROUGH	456	456	485
5		RIGHT	156	156	166
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	137	137	146
		THROUGH	9	9	10
		RIGHT	83	83	89
	NB	LEFT	25	25	27
NYS 27 SOUTH SERVICE ROAD		THROUGH	594	594	631
AT		RIGHT	47	47	50
STATION ROAD	SB	LEFT	105	105	112
		THROUGH	441	441	469
6		RIGHT	44	44	47
	EB	LEFT	224	224	238
		THROUGH	83	83	89
		RIGHT	269	269	286
	WB	LEFT	4	4	5
		THROUGH	1	1	2
		RIGHT	18	18	20

NELSON & POPE

PM PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

GROWTH FACTOR:	2.00%
NO. OF YEARS:	3
GROWTH RATE:	1.062
SEASONAL ADJUSTMENT FACTOR	1.000

LOCATION	DIR	MVMT	EXISTING VOLUME	SEASONALLY ADJUSTED VOLUMES	AMBIENT NO BUILD VOLUME
	NB	LEFT	205	205	218
NYS 27 EXIT 56 WESTBOUND RAMP		THROUGH	0	0	0
AT		RIGHT	6	6	7
NYS 27 NORTH SERVICE ROAD	SB	LEFT	0	0	0
		THROUGH	0	0	0
7		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	46	46	49
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	36	36	39
		RIGHT	0	0	0
	NB	LEFT	0	0	0
S VILLAGE DRIVE		THROUGH	24	24	26
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	44	44	47
8		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	0	0	0
CR 99 (E WOODSIDE AVENUE)		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	0	0	0
9		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	388	388	413
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	343	343	365
		RIGHT	0	0	0
	NB	LEFT	0	0	0
STATION ROAD		THROUGH	510	510	542
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	511	511	543
10		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	0	0	0
NYS 27 NORTH SERVICE ROAD		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE EXIT	SB	LEFT	0	0	0
		THROUGH	0	0	0
11		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	47	47	50
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	229	229	244
		RIGHT	0	0	0
	NB	LEFT	0	0	0
NYS 27 NORTH SERVICE ROAD		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	0	0	0
12		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	52	52	56
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	36	36	39
		RIGHT	0	0	0

NELSON & POPE

PM PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

OTHER
PLANNED
PROJECTS

	VOL
ENTER	0
EXIT	0
TOTAL	0

SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS

LOCATION	DIR	MVMT	%EN	%EX	VOL	SUBTOTAL VOL
CR 101 (SILLS ROAD) AT STATION ROAD 1	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
CR 99 (E WOODSIDE AVENUE) AT STATION ROAD 2	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
CR 99 (E WOODSIDE AVENUE) AT SAWGRASS DR/S VILLAGE DR 3	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
FARBER DRIVE/DRIVEWAY AT STATION ROAD 4	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
NYS 27 NORTH SERVICE ROAD AT STATION ROAD 5	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
NYS 27 SOUTH SERVICE ROAD AT STATION ROAD 6	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0

NELSON & POPE

PM PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

OTHER
PLANNED
PROJECTS

	VOL
ENTER	0
EXIT	0
TOTAL	0

SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS

LOCATION	DIR	MVMT	%EN	%EX	VOL	SUBTOTAL VOL
NYS 27 EXIT 56 WESTBOUND RAMP AT NYS 27 NORTH SERVICE ROAD 7	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
S VILLAGE DRIVE AT SITE ACCESS 8	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
CR 99 (E WOODSIDE AVENUE) AT SITE ACCESS 9	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
STATION ROAD AT SITE ACCESS 10	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
NYS 27 NORTH SERVICE ROAD AT SITE EXIT 11	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
NYS 27 NORTH SERVICE ROAD AT SITE ACCESS 12	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0

NELSON & POPE

PM PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

LOCATION	DIR	MVMT	AMBIENT NO BUILD VOLUME	SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS	SUBTOTAL NO BUILD VOLUME
	NB	LEFT	11	0	11
CR 101 (SILLS ROAD)		THROUGH	231	0	231
AT		RIGHT	113	0	113
STATION ROAD	SB	LEFT	8	0	8
		THROUGH	296	0	296
1		RIGHT	193	0	193
	EB	LEFT	171	0	171
		THROUGH	621	0	621
		RIGHT	7	0	7
	WB	LEFT	124	0	124
		THROUGH	548	0	548
		RIGHT	3	0	3
	NB	LEFT	76	0	76
CR 99 (E WOODSIDE AVENUE)		THROUGH	333	0	333
AT		RIGHT	90	0	90
STATION ROAD	SB	LEFT	94	0	94
		THROUGH	325	0	325
2		RIGHT	48	0	48
	EB	LEFT	36	0	36
		THROUGH	230	0	230
		RIGHT	95	0	95
	WB	LEFT	113	0	113
		THROUGH	185	0	185
		RIGHT	67	0	67
	NB	LEFT	15	0	15
CR 99 (E WOODSIDE AVENUE)		THROUGH	10	0	10
AT		RIGHT	6	0	6
SAWGRASS DR/S VILLAGE DR	SB	LEFT	25	0	25
		THROUGH	13	0	13
3		RIGHT	227	0	227
	EB	LEFT	162	0	162
		THROUGH	178	0	178
		RIGHT	32	0	32
	WB	LEFT	8	0	8
		THROUGH	114	0	114
		RIGHT	11	0	11
	NB	LEFT	157	0	157
FARBER DRIVE/DRIVEWAY		THROUGH	453	0	453
AT		RIGHT	0	0	0
STATION ROAD	SB	LEFT	0	0	0
		THROUGH	454	0	454
4		RIGHT	90	0	90
	EB	LEFT	90	0	90
		THROUGH	0	0	0
		RIGHT	200	0	200
	WB	LEFT	2	0	2
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	346	0	346
NYS 27 NORTH SERVICE ROAD		THROUGH	503	0	503
AT		RIGHT	48	0	48
STATION ROAD	SB	LEFT	3	0	3
		THROUGH	485	0	485
5		RIGHT	166	0	166
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	146	0	146
		THROUGH	10	0	10
		RIGHT	89	0	89
	NB	LEFT	27	0	27
NYS 27 SOUTH SERVICE ROAD		THROUGH	631	0	631
AT		RIGHT	50	0	50
STATION ROAD	SB	LEFT	112	0	112
		THROUGH	469	0	469
6		RIGHT	47	0	47
	EB	LEFT	238	0	238
		THROUGH	89	0	89
		RIGHT	286	0	286
	WB	LEFT	5	0	5
		THROUGH	2	0	2
		RIGHT	20	0	20

NELSON & POPE

PM PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

LOCATION	DIR	MVMT	AMBIENT NO BUILD VOLUME	SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS	SUBTOTAL NO BUILD VOLUME
	NB	LEFT	218	0	218
NYS 27 EXIT 56 WESTBOUND RAMP		THROUGH	0	0	0
AT		RIGHT	7	0	7
NYS 27 NORTH SERVICE ROAD	SB	LEFT	0	0	0
		THROUGH	0	0	0
7		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	49	0	49
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	39	0	39
		RIGHT	0	0	0
	NB	LEFT	0	0	0
S VILLAGE DRIVE		THROUGH	26	0	26
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	47	0	47
8		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	0	0	0
CR 99 (E WOODSIDE AVENUE)		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	0	0	0
9		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	413	0	413
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	365	0	365
		RIGHT	0	0	0
	NB	LEFT	0	0	0
STATION ROAD		THROUGH	542	0	542
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	543	0	543
10		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
			0	0	0
	NB	LEFT	0	0	0
NYS 27 NORTH SERVICE ROAD		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE EXIT	SB	LEFT	0	0	0
		THROUGH	0	0	0
11		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	50	0	50
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	244	0	244
		RIGHT	0	0	0
	NB	LEFT	0	0	0
NYS 27 NORTH SERVICE ROAD		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	0	0	0
12		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	56	0	56
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	39	0	39
		RIGHT	0	0	0

NELSON & POPE

PM PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

	VOL
ENTER	188
EXIT	135
TOTAL	323

LOCATION	DIR	MVMT	%EN	%EX	CREST TOWN CENTER 1 VOL	SUBTOTAL TRAFFIC GENERATED SUBTOTAL VOL
CR 101 (SILLS ROAD) AT STATION ROAD 1	NB	LEFT			0	0
		THROUGH		20	27	27
		RIGHT		10	14	14
	SB	LEFT			0	0
		THROUGH	20		38	38
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT	10		19	19
		THROUGH			0	0
		RIGHT			0	0
CR 99 (E WOODSIDE AVENUE) AT STATION ROAD 2	NB	LEFT		10	14	14
		THROUGH		20	27	27
		RIGHT			0	0
	SB	LEFT	10		19	19
		THROUGH	20		38	38
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH	10		19	19
		RIGHT	10		19	19
	WB	LEFT			0	0
		THROUGH		10	14	14
		RIGHT		10	14	14
CR 99 (E WOODSIDE AVENUE) AT SAWGRASS DR/S VILLAGE DR 3	NB	LEFT		20	27	27
		THROUGH			0	0
		RIGHT		5	7	7
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT	5		9	9
		THROUGH			0	0
		RIGHT			0	0
FARBER DRIVE/DRIVEWAY AT STATION ROAD 4	NB	LEFT			0	0
		THROUGH	30		56	56
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH		30	41	41
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
NYS 27 NORTH SERVICE ROAD AT STATION ROAD 5	NB	LEFT			0	0
		THROUGH	20		38	38
		RIGHT	5		9	9
	SB	LEFT			0	0
		THROUGH		10	14	14
		RIGHT		20	27	27
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT		10	14	14
		THROUGH		5	7	7
		RIGHT	10		19	19
NYS 27 SOUTH SERVICE ROAD AT STATION ROAD 6	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT		20	27	27
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT	25		47	47
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0

NELSON & POPE

PM PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

					CREST TOWN CENTER	SUBTOTAL TRAFFIC GENERATED
					VOL	
				ENTER	188	
				EXIT	135	
				TOTAL	323	
LOCATION	**DIR**	**MVMT**	**%EN**	**%EX**	**1 VOL**	SUBTOTAL VOL
NYS 27 EXIT 56 WESTBOUND RAMP AT NYS 27 NORTH SERVICE ROAD 7	NB	LEFT	10		19	19
		THROUGH			0	0
		RIGHT	10		19	19
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH	5		9	9
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH		5	7	7
		RIGHT			0	0
S VILLAGE DRIVE AT SITE ACCESS 8	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT	5		9	9
	EB	LEFT		25	34	34
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
CR 99 (E WOODSIDE AVENUE) AT SITE ACCESS 9	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT	20		38	38
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
STATION ROAD AT SITE ACCESS 10	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT	30		56	56
	SB	LEFT	30		56	56
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT		30	41	41
		THROUGH			0	0
		RIGHT		30	41	41
NYS 27 NORTH SERVICE ROAD AT SITE EXIT 11	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT		10	14	14
	EB	LEFT			0	0
		THROUGH	5		9	9
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH	10	5	26	26
		RIGHT			0	0
NYS 27 NORTH SERVICE ROAD AT SITE ACCESS 12	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT		5	7	7
	EB	LEFT	15		28	28
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0

NELSON & POPE

PM PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

LOCATION	DIR	MVMT	SUBTOTAL NO BUILD VOLUME	TRAFFIC GENERATED BY PROPOSED PROJECT	TOTAL BUILD VOLUME
	NB	LEFT	11	0	11
CR 101 (SILLS ROAD)		THROUGH	231	27	258
AT		RIGHT	113	14	127
STATION ROAD	SB	LEFT	8	0	8
		THROUGH	296	38	334
1		RIGHT	193	0	193
	EB	LEFT	171	0	171
		THROUGH	621	0	621
		RIGHT	7	0	7
	WB	LEFT	124	19	143
		THROUGH	548	0	548
		RIGHT	3	0	3
	NB	LEFT	76	14	90
CR 99 (E WOODSIDE AVENUE)		THROUGH	333	27	360
AT		RIGHT	90	0	90
STATION ROAD	SB	LEFT	94	19	113
		THROUGH	325	38	363
2		RIGHT	48	0	48
	EB	LEFT	36	0	36
		THROUGH	230	19	249
		RIGHT	95	19	114
	WB	LEFT	113	0	113
		THROUGH	185	14	199
		RIGHT	67	14	81
				0	
	NB	LEFT	15	27	42
CR 99 (E WOODSIDE AVENUE)		THROUGH	10	0	10
AT		RIGHT	6	7	13
SAWGRASS DR/S VILLAGE DR	SB	LEFT	25	0	25
		THROUGH	13	0	13
3		RIGHT	227	0	227
	EB	LEFT	162	0	162
		THROUGH	178	0	178
		RIGHT	32	0	32
	WB	LEFT	8	9	17
		THROUGH	114	0	114
		RIGHT	11	0	11
	NB	LEFT	157	0	157
FARBER DRIVE/DRIVEWAY		THROUGH	453	56	509
AT		RIGHT	0	0	0
STATION ROAD	SB	LEFT	0	0	0
		THROUGH	454	41	495
4		RIGHT	90	0	90
	EB	LEFT	90	0	90
		THROUGH	0	0	0
		RIGHT	200	0	200
	WB	LEFT	2	0	2
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	346	0	346
NYS 27 NORTH SERVICE ROAD		THROUGH	503	38	541
AT		RIGHT	48	9	57
STATION ROAD	SB	LEFT	3	0	3
		THROUGH	485	14	499
5		RIGHT	166	27	193
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	146	14	160
		THROUGH	10	7	17
		RIGHT	89	19	108
	NB	LEFT	27	0	27
NYS 27 SOUTH SERVICE ROAD		THROUGH	631	0	631
AT		RIGHT	50	0	50
STATION ROAD	SB	LEFT	112	27	139
		THROUGH	469	0	469
6		RIGHT	47	0	47
	EB	LEFT	238	47	285
		THROUGH	89	0	89
		RIGHT	286	0	286
	WB	LEFT	5	0	5
		THROUGH	2	0	2
		RIGHT	20	0	20

NELSON & POPE

PM PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

LOCATION	DIR	MVMT	SUBTOTAL NO BUILD VOLUME	TRAFFIC GENERATED BY PROPOSED PROJECT	TOTAL BUILD VOLUME
	NB	LEFT	218	19	237
NYS 27 EXIT 56 WESTBOUND RAMP		THROUGH	0	0	0
AT		RIGHT	7	19	26
NYS 27 NORTH SERVICE ROAD	SB	LEFT	0	0	0
		THROUGH	0	0	0
7		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	49	9	58
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	39	7	46
		RIGHT	0	0	0
	NB	LEFT	0	0	0
S VILLAGE DRIVE		THROUGH	26	0	26
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	47	0	47
8		RIGHT	0	9	9
	EB	LEFT	0	34	34
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	0	0	0
CR 99 (E WOODSIDE AVENUE)		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	0	0	0
9		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	413	0	413
		RIGHT	0	38	38
	WB	LEFT	0	0	0
		THROUGH	365	0	365
		RIGHT	0	0	0
	NB	LEFT	0	0	0
STATION ROAD		THROUGH	542	0	542
AT		RIGHT	0	56	56
SITE ACCESS	SB	LEFT	0	56	56
		THROUGH	543	0	543
10		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	41	41
		THROUGH	0	0	0
		RIGHT	0	41	41
	NB	LEFT	0	0	0
NYS 27 NORTH SERVICE ROAD		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE EXIT	SB	LEFT	0	0	0
		THROUGH	0	0	0
11		RIGHT	0	14	14
	EB	LEFT	0	0	0
		THROUGH	50	9	59
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	244	26	270
		RIGHT	0	0	0
	NB	LEFT	0	0	0
NYS 27 NORTH SERVICE ROAD		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	0	0	0
12		RIGHT	0	7	7
	EB	LEFT	0	28	28
		THROUGH	56	0	56
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	39	0	39
		RIGHT	0	0	0

NELSON & POPE

SATURDAY PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

GROWTH FACTOR:	2.00%
NO. OF YEARS:	3
GROWTH RATE:	1.062
SEASONAL ADJUSTMENT FACTOR	0.895

LOCATION	DIR	MVMT	EXISTING VOLUME	SEASONALLY ADJUSTED VOLUMES	AMBIENT NO BUILD VOLUME
	NB	LEFT	12	14	15
CR 101 (SILLS ROAD)		THROUGH	174	195	208
AT		RIGHT	96	108	115
STATION ROAD	SB	LEFT	2	3	4
		THROUGH	234	262	279
1		RIGHT	129	145	154
	EB	LEFT	107	120	128
		THROUGH	377	422	449
		RIGHT	20	23	25
	WB	LEFT	122	137	146
		THROUGH	358	400	425
		RIGHT	7	8	9
	NB	LEFT	84	94	100
CR 99 (E WOODSIDE AVENUE)		THROUGH	274	307	327
AT		RIGHT	47	53	57
STATION ROAD	SB	LEFT	65	73	78
		THROUGH	300	336	357
2		RIGHT	37	42	45
	EB	LEFT	27	31	33
		THROUGH	117	131	140
		RIGHT	90	101	108
	WB	LEFT	56	63	67
		THROUGH	96	108	115
		RIGHT	47	53	57
	NB	LEFT	6	8	9
CR 99 (E WOODSIDE AVENUE)		THROUGH	6	8	9
AT		RIGHT	3	4	5
SAWGRASS DR/S VILLAGE DR	SB	LEFT	3	4	5
		THROUGH	8	11	12
3		RIGHT	127	168	179
	EB	LEFT	92	122	130
		THROUGH	112	148	158
		RIGHT	11	15	16
	WB	LEFT	28	37	40
		THROUGH	100	132	141
		RIGHT	4	6	7
	NB	LEFT	248	278	296
FARBER DRIVE/DRIVEWAY		THROUGH	295	330	351
AT		RIGHT	0	0	0
STATION ROAD	SB	LEFT	0	0	0
		THROUGH	345	386	410
4		RIGHT	152	170	181
	EB	LEFT	129	145	154
		THROUGH	0	0	0
		RIGHT	315	352	374
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	294	329	350
NYS 27 NORTH SERVICE ROAD		THROUGH	506	566	602
AT		RIGHT	18	21	23
STATION ROAD	SB	LEFT	2	3	4
		THROUGH	451	504	536
5		RIGHT	168	188	200
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	103	116	124
		THROUGH	17	19	21
		RIGHT	90	101	108
	NB	LEFT	28	32	34
NYS 27 SOUTH SERVICE ROAD		THROUGH	542	606	644
AT		RIGHT	49	55	59
STATION ROAD	SB	LEFT	86	97	104
		THROUGH	386	432	459
6		RIGHT	84	94	100
	EB	LEFT	253	283	301
		THROUGH	107	120	128
		RIGHT	215	241	256
	WB	LEFT	1	2	3
		THROUGH	0	0	0
		RIGHT	21	24	26

NELSON & POPE

SATURDAY PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

GROWTH FACTOR:	2.00%
NO. OF YEARS:	3
GROWTH RATE:	1.062
SEASONAL ADJUSTMENT FACTOR	0.895

LOCATION	DIR	MVMT	EXISTING VOLUME	SEASONALLY ADJUSTED VOLUMES	AMBIENT NO BUILD VOLUME
	NB	LEFT	213	238	253
NYS 27 EXIT 56 WESTBOUND RAMP		THROUGH	0	0	0
AT		RIGHT	2	3	4
NYS 27 NORTH SERVICE ROAD	SB	LEFT	0	0	0
		THROUGH	0	0	0
7		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	15	17	19
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	29	33	36
		RIGHT	0	0	0
	NB	LEFT	0	0	0
S VILLAGE DRIVE		THROUGH	15	17	19
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	47	53	57
8		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	0	0	0
CR 99 (E WOODSIDE AVENUE)		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	0	0	0
9		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	229	256	272
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	199	223	237
		RIGHT	0	0	0
	NB	LEFT	0	0	0
STATION ROAD		THROUGH	424	474	504
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	497	556	591
10		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	0	0	0
NYS 27 NORTH SERVICE ROAD		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE EXIT	SB	LEFT	0	0	0
		THROUGH	0	0	0
11		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	20	23	25
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	210	235	250
		RIGHT	0	0	0
	NB	LEFT	0	0	0
NYS 27 NORTH SERVICE ROAD		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	0	0	0
12		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	17	19	21
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	29	33	36
		RIGHT	0	0	0

NELSON & POPE

SATURDAY PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

OTHER
PLANNED
PROJECTS

	VOL
ENTER	0
EXIT	0
TOTAL	0

SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS

LOCATION	DIR	MVMT	%EN	%EX	VOL	SUBTOTAL VOL
CR 101 (SILLS ROAD) AT STATION ROAD 1	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
CR 99 (E WOODSIDE AVENUE) AT STATION ROAD 2	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
CR 99 (E WOODSIDE AVENUE) AT SAWGRASS DR/S VILLAGE DR 3	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
FARBER DRIVE/DRIVEWAY AT STATION ROAD 4	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
NYS 27 NORTH SERVICE ROAD AT STATION ROAD 5	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
NYS 27 SOUTH SERVICE ROAD AT STATION ROAD 6	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0

NELSON & POPE

SATURDAY PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

OTHER
PLANNED
PROJECTS

	VOL
ENTER	0
EXIT	0
TOTAL	0

SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS

LOCATION	DIR	MVMT	%EN	%EX	VOL	SUBTOTAL VOL
NYS 27 EXIT 56 WESTBOUND RAMP AT NYS 27 NORTH SERVICE ROAD 7	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
S VILLAGE DRIVE AT SITE ACCESS 8	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
CR 99 (E WOODSIDE AVENUE) AT SITE ACCESS 9	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
STATION ROAD AT SITE ACCESS 10	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
NYS 27 NORTH SERVICE ROAD AT SITE EXIT 11	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
NYS 27 NORTH SERVICE ROAD AT SITE ACCESS 12	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0

NELSON & POPE

SATURDAY PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

LOCATION	DIR	MVMT	AMBIENT NO BUILD VOLUME	SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS	SUBTOTAL NO BUILD VOLUME
	NB	LEFT	15	0	15
CR 101 (SILLS ROAD)		THROUGH	208	0	208
AT		RIGHT	115	0	115
STATION ROAD	SB	LEFT	4	0	4
		THROUGH	279	0	279
1		RIGHT	154	0	154
	EB	LEFT	128	0	128
		THROUGH	449	0	449
		RIGHT	25	0	25
	WB	LEFT	146	0	146
		THROUGH	425	0	425
		RIGHT	9	0	9
	NB	LEFT	100	0	100
CR 99 (E WOODSIDE AVENUE)		THROUGH	327	0	327
AT		RIGHT	57	0	57
STATION ROAD	SB	LEFT	78	0	78
		THROUGH	357	0	357
2		RIGHT	45	0	45
	EB	LEFT	33	0	33
		THROUGH	140	0	140
		RIGHT	108	0	108
	WB	LEFT	67	0	67
		THROUGH	115	0	115
		RIGHT	57	0	57
	NB	LEFT	9	0	9
CR 99 (E WOODSIDE AVENUE)		THROUGH	9	0	9
AT		RIGHT	5	0	5
SAWGRASS DR/S VILLAGE DR	SB	LEFT	5	0	5
		THROUGH	12	0	12
3		RIGHT	179	0	179
	EB	LEFT	130	0	130
		THROUGH	158	0	158
		RIGHT	16	0	16
	WB	LEFT	40	0	40
		THROUGH	141	0	141
		RIGHT	7	0	7
	NB	LEFT	296	0	296
FARBER DRIVE/DRIVEWAY		THROUGH	351	0	351
AT		RIGHT	0	0	0
STATION ROAD	SB	LEFT	0	0	0
		THROUGH	410	0	410
4		RIGHT	181	0	181
	EB	LEFT	154	0	154
		THROUGH	0	0	0
		RIGHT	374	0	374
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	350	0	350
NYS 27 NORTH SERVICE ROAD		THROUGH	602	0	602
AT		RIGHT	23	0	23
STATION ROAD	SB	LEFT	4	0	4
		THROUGH	536	0	536
5		RIGHT	200	0	200
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	124	0	124
		THROUGH	21	0	21
		RIGHT	108	0	108
	NB	LEFT	34	0	34
NYS 27 SOUTH SERVICE ROAD		THROUGH	644	0	644
AT		RIGHT	59	0	59
STATION ROAD	SB	LEFT	104	0	104
		THROUGH	459	0	459
6		RIGHT	100	0	100
	EB	LEFT	301	0	301
		THROUGH	128	0	128
		RIGHT	256	0	256
	WB	LEFT	3	0	3
		THROUGH	0	0	0
		RIGHT	26	0	26

NELSON & POPE

SATURDAY PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

LOCATION	DIR	MVMT	AMBIENT NO BUILD VOLUME	SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS	SUBTOTAL NO BUILD VOLUME
	NB	LEFT	253	0	253
NYS 27 EXIT 56 WESTBOUND RAMP		THROUGH	0	0	0
AT		RIGHT	4	0	4
NYS 27 NORTH SERVICE ROAD	SB	LEFT	0	0	0
		THROUGH	0	0	0
7		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	19	0	19
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	36	0	36
		RIGHT	0	0	0
	NB	LEFT	0	0	0
S VILLAGE DRIVE		THROUGH	19	0	19
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	57	0	57
8		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	0	0	0
CR 99 (E WOODSIDE AVENUE)		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	0	0	0
9		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	272	0	272
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	237	0	237
		RIGHT	0	0	0
	NB	LEFT	0	0	0
STATION ROAD		THROUGH	504	0	504
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	591	0	591
10		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
			0	0	0
	NB	LEFT	0	0	0
NYS 27 NORTH SERVICE ROAD		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE EXIT	SB	LEFT	0	0	0
		THROUGH	0	0	0
11		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	25	0	25
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	250	0	250
		RIGHT	0	0	0
	NB	LEFT	0	0	0
NYS 27 NORTH SERVICE ROAD		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	0	0	0
12		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	21	0	21
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	36	0	36
		RIGHT	0	0	0

NELSON & POPE

SATURDAY PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

					CREST TOWN CENTER	SUBTOTAL TRAFFIC GENERATED
					VOL	
				ENTER	149	
				EXIT	142	
				TOTAL	291	
LOCATION	**DIR**	**MVMT**	**%EN**	**%EX**	**1 VOL**	SUBTOTAL VOL
CR 101 (SILLS ROAD) AT STATION ROAD 1	NB	LEFT			0	0
		THROUGH		20	28	28
		RIGHT		10	14	14
	SB	LEFT			0	0
		THROUGH	20		30	30
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT	10		15	15
		THROUGH			0	0
		RIGHT			0	0
CR 99 (E WOODSIDE AVENUE) AT STATION ROAD 2	NB	LEFT		10	14	14
		THROUGH		20	28	28
		RIGHT			0	0
	SB	LEFT	10		15	15
		THROUGH	20		30	30
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH	10		15	15
		RIGHT	10		15	15
	WB	LEFT			0	0
		THROUGH		10	14	14
		RIGHT		10	14	14
CR 99 (E WOODSIDE AVENUE) AT SAWGRASS DR/S VILLAGE DR 3	NB	LEFT		20	28	28
		THROUGH			0	0
		RIGHT		5	7	7
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT	5		7	7
		THROUGH			0	0
		RIGHT			0	0
FARBER DRIVE/DRIVEWAY AT STATION ROAD 4	NB	LEFT			0	0
		THROUGH	30		45	45
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH		30	43	43
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
NYS 27 NORTH SERVICE ROAD AT STATION ROAD 5	NB	LEFT			0	0
		THROUGH	20		30	30
		RIGHT	5		7	7
	SB	LEFT			0	0
		THROUGH		10	14	14
		RIGHT		20	28	28
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT		10	14	14
		THROUGH		5	7	7
		RIGHT	10		15	15
NYS 27 SOUTH SERVICE ROAD AT STATION ROAD 6	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT		20	28	28
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT	25		37	37
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0

NELSON & POPE

SATURDAY PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

					CREST TOWN CENTER	SUBTOTAL TRAFFIC GENERATED
					VOL	
				ENTER	149	
				EXIT	142	
				TOTAL	291	
LOCATION	**DIR**	**MVMT**	**%EN**	**%EX**	**1 VOL**	SUBTOTAL VOL
NYS 27 EXIT 56 WESTBOUND RAMP AT NYS 27 NORTH SERVICE ROAD	NB	LEFT	10		15	15
		THROUGH			0	0
		RIGHT	10		15	15
	SB	LEFT			0	0
		THROUGH			0	0
7		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH	5		7	7
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH		5	7	7
		RIGHT			0	0
S VILLAGE DRIVE AT SITE ACCESS	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
8		RIGHT	5		7	7
	EB	LEFT		25	36	36
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
CR 99 (E WOODSIDE AVENUE) AT SITE ACCESS	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
9		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT	20		30	30
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
STATION ROAD AT SITE ACCESS	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT	30		45	45
	SB	LEFT	30		45	45
		THROUGH			0	0
10		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT		30	43	43
		THROUGH			0	0
		RIGHT		30	43	43
NYS 27 NORTH SERVICE ROAD AT SITE EXIT	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
11		RIGHT		10	14	14
	EB	LEFT			0	0
		THROUGH	5		7	7
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH	10	5	22	22
		RIGHT			0	0
NYS 27 NORTH SERVICE ROAD AT SITE ACCESS	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
12		RIGHT		5	7	7
	EB	LEFT	15		22	22
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0

NELSON & POPE

SATURDAY PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

LOCATION	DIR	MVMT	SUBTOTAL NO BUILD VOLUME	TRAFFIC GENERATED BY PROPOSED PROJECT	TOTAL BUILD VOLUME
	NB	LEFT	15	0	15
CR 101 (SILLS ROAD)		THROUGH	208	28	236
AT		RIGHT	115	14	129
STATION ROAD	SB	LEFT	4	0	4
		THROUGH	279	30	309
1		RIGHT	154	0	154
	EB	LEFT	128	0	128
		THROUGH	449	0	449
		RIGHT	25	0	25
	WB	LEFT	146	15	161
		THROUGH	425	0	425
		RIGHT	9	0	9
	NB	LEFT	100	14	114
CR 99 (E WOODSIDE AVENUE)		THROUGH	327	28	355
AT		RIGHT	57	0	57
STATION ROAD	SB	LEFT	78	15	93
		THROUGH	357	30	387
2		RIGHT	45	0	45
	EB	LEFT	33	0	33
		THROUGH	140	15	155
		RIGHT	108	15	123
	WB	LEFT	67	0	67
		THROUGH	115	14	129
		RIGHT	57	14	71
	NB	LEFT	9	28	37
CR 99 (E WOODSIDE AVENUE)		THROUGH	9	0	9
AT		RIGHT	5	7	12
SAWGRASS DR/S VILLAGE DR	SB	LEFT	5	0	5
		THROUGH	12	0	12
3		RIGHT	179	0	179
	EB	LEFT	130	0	130
		THROUGH	158	0	158
		RIGHT	16	0	16
	WB	LEFT	40	7	47
		THROUGH	141	0	141
		RIGHT	7	0	7
	NB	LEFT	296	0	296
FARBER DRIVE/DRIVEWAY		THROUGH	351	45	396
AT		RIGHT	0	0	0
STATION ROAD	SB	LEFT	0	0	0
		THROUGH	410	43	453
4		RIGHT	181	0	181
	EB	LEFT	154	0	154
		THROUGH	0	0	0
		RIGHT	374	0	374
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	350	0	350
NYS 27 NORTH SERVICE ROAD		THROUGH	602	30	632
AT		RIGHT	23	7	30
STATION ROAD	SB	LEFT	4	0	4
		THROUGH	536	14	550
5		RIGHT	200	28	228
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	124	14	138
		THROUGH	21	7	28
		RIGHT	108	15	123
	NB	LEFT	34	0	34
NYS 27 SOUTH SERVICE ROAD		THROUGH	644	0	644
AT		RIGHT	59	0	59
STATION ROAD	SB	LEFT	104	28	132
		THROUGH	459	0	459
6		RIGHT	100	0	100
	EB	LEFT	301	37	338
		THROUGH	128	0	128
		RIGHT	256	0	256
	WB	LEFT	3	0	3
		THROUGH	0	0	0
		RIGHT	26	0	26

NELSON & POPE

SATURDAY PEAK HOUR
CREST TOWN CENTER
N&P Project No. 16212

LOCATION	DIR	MVMT	SUBTOTAL NO BUILD VOLUME	TRAFFIC GENERATED BY PROPOSED PROJECT	TOTAL BUILD VOLUME
	NB	LEFT	253	15	268
NYS 27 EXIT 56 WESTBOUND RAMP		THROUGH	0	0	0
AT		RIGHT	4	15	19
NYS 27 NORTH SERVICE ROAD	SB	LEFT	0	0	0
		THROUGH	0	0	0
7		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	19	7	26
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	36	7	43
		RIGHT	0	0	0
	NB	LEFT	0	0	0
S VILLAGE DRIVE		THROUGH	19	0	19
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	57	0	57
8		RIGHT	0	7	7
	EB	LEFT	0	36	36
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	0	0	0
CR 99 (E WOODSIDE AVENUE)		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	0	0	0
9		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	272	0	272
		RIGHT	0	30	30
	WB	LEFT	0	0	0
		THROUGH	237	0	237
		RIGHT	0	0	0
	NB	LEFT	0	0	0
STATION ROAD		THROUGH	504	0	504
AT		RIGHT	0	45	45
SITE ACCESS	SB	LEFT	0	45	45
		THROUGH	591	0	591
10		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	43	43
		THROUGH	0	0	0
		RIGHT	0	43	43
	NB	LEFT	0	0	0
NYS 27 NORTH SERVICE ROAD		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE EXIT	SB	LEFT	0	0	0
		THROUGH	0	0	0
11		RIGHT	0	14	14
	EB	LEFT	0	0	0
		THROUGH	25	7	32
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	250	22	272
		RIGHT	0	0	0
	NB	LEFT	0	0	0
NYS 27 NORTH SERVICE ROAD		THROUGH	0	0	0
AT		RIGHT	0	0	0
SITE ACCESS	SB	LEFT	0	0	0
		THROUGH	0	0	0
12		RIGHT	0	7	7
	EB	LEFT	0	22	22
		THROUGH	21	0	21
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	36	0	36
		RIGHT	0	0	0

Appendix B: Trip Generation

NELSON & POPE

TRIP GENERATION
Project Name: Crest Town Center
N&P Project No. 16212

	Unadjusted Trip Generation Volumes							
Time Period	Apartments 160 Units	Assisted Living 130 Beds	Senior Housing 106 Units	Restaurant 180 Seats	Fitness Club 33,600 SF	Shopping Center 15,000 SF	Mini-Storage 119,600 SF	TOTAL
AM	13 enter 51 exit 64 total	16 enter 7 exit 23 total	14 enter 29 exit 43 total	45 enter 41 exit 86 total	22 enter 22 exit 44 total	9 enter 5 exit 14 total	7 enter 5 exit 12 total	126 enter 160 exit 286 total
PM	56 enter 30 exit 86 total	19 enter 19 exit 38 total	30 enter 20 exit 50 total	43 enter 33 exit 76 total	69 enter 52 exit 121 total	27 enter 30 exit 57 total	9 enter 11 exit 20 total	253 enter 195 exit 448 total
SATURDAY	50 enter 42 exit 92 total	16 enter 19 exit 35 total	6 enter 6 exit 12 total	50 enter 45 exit 95 total	52 enter 55 exit 107 total	35 enter 33 exit 68 total	9 enter 11 exit 20 total	218 enter 211 exit 429 total

	Pass-By Volumes															
	Apartments 160 Units		Assisted Living 130 Beds		Senior Housing 106 Units		Restaurant 180 Seats		Fitness Club 33,600 SF		Shopping Center 15,000 SF		Mini-Storage 119,600 SF		TOTAL
AM	0 enter 0 exit 0 total	0%	0 enter 0 exit 0 total	0%	0 enter 0 exit 0 total	0%	0 enter 0 exit 0 total	0%	0 enter 0 exit 0 total	0%	0 enter 0 exit 0 total	0%	0 enter 0 exit 0 total	0%	0 enter 0 exit 0 total
PM	0 enter 0 exit 0 total	0%	0 enter 0 exit 0 total	0%	0 enter 0 exit 0 total	0%	18 enter 14 exit 33 total	43%	0 enter 0 exit 0 total	0%	9 enter 10 exit 19 total	34%	0 enter 0 exit 0 total	0%	28 enter 24 exit 52 total
SATURDAY	0 enter 0 exit 0 total	0%	0 enter 0 exit 0 total	0%	0 enter 0 exit 0 total	0%	10 enter 9 exit 19 total	20%	0 enter 0 exit 0 total	0%	9 enter 9 exit 18 total	26%	0 enter 0 exit 0 total	0%	19 enter 18 exit 37 total

	Crest Town Center Internal Trips							
	Apartments 160 Units	Assisted Living 130 Beds	Senior Housing 106 Units	Restaurant 180 Seats	Fitness Club 33,600 SF	Shopping Center 15,000 SF	Mini-Storage 119,600 SF	TOTAL
AM	1 enter 2 exit 3 total	0 enter 0 exit 0 total	2 enter 1 exit 3 total	3 enter 7 exit 10 total	2 enter 2 exit 4 total	6 enter 2 exit 8 total	0 enter 0 exit 0 total	14 enter 14 exit 28 total
PM	5 enter 7 exit 12 total	0 enter 0 exit 0 total	3 enter 5 exit 8 total	10 enter 8 exit 18 total	7 enter 5 exit 12 total	13 enter 11 exit 24 total	0 enter 0 exit 0 total	38 enter 36 exit 74 total
SATURDAY	11 enter 16 exit 27 total	0 enter 0 exit 0 total	1 enter 2 exit 3 total	13 enter 14 exit 27 total	5 enter 6 exit 11 total	20 enter 13 exit 33 total	0 enter 0 exit 0 total	50 enter 51 exit 101 total

	Crest Town Center External Trips							
	Apartments 160 Units	Assisted Living 130 Beds	Senior Housing 106 Units	Restaurant 180 Seats	Fitness Club 33,600 SF	Shopping Center 15,000 SF	Mini-Storage 119,600 SF	TOTAL
AM	12 enter 49 exit 61 total	16 enter 7 exit 23 total	12 enter 28 exit 40 total	42 enter 34 exit 76 total	20 enter 20 exit 40 total	3 enter 3 exit 6 total	7 enter 5 exit 12 total	112 enter 146 exit 258 total
PM	51 enter 23 exit 74 total	19 enter 19 exit 38 total	27 enter 15 exit 42 total	15 enter 11 exit 26 total	62 enter 47 exit 109 total	5 enter 9 exit 14 total	9 enter 11 exit 20 total	188 enter 135 exit 322 total
SATURDAY	39 enter 26 exit 65 total	16 enter 19 exit 35 total	5 enter 4 exit 9 total	27 enter 22 exit 49 total	47 enter 49 exit 96 total	6 enter 11 exit 17 total	9 enter 11 exit 20 total	149 enter 142 exit 291 total

NELSON & POPE
ENGINEERS & SURVEYORS

Analyst: MCM
Date: 6/25/2018

MULTI-USE DEVELOPMENT TRIP GENERATION AND INTERNAL CAPTURE SUMMARY

Name of Development: Crest Town Center
Time Period: AM Peak BUILD

Land Use A :

ITE LU Code: Retail LUC 820
Size: 15,000 SF

	Total	Internal	External
Enter	9	6	3
Exit	5	2	3
Total	14	8	6
%	100%	57%	43%

Exit from External: 3
Enter from External: 3

Land Use B :

ITE LU Code:
Size:

	Total	Internal	External
Enter	0	0	0
Exit	0	0	0
Total	0	0	0
%	#DIV/0!	#DIV/0!	#DIV/0!

Exit from External: 0
Enter from External: 0

Land Use C :

ITE LU Code: Residential
Size: 266 Units

	Total	Internal	External
Enter	27	3	24
Exit	80	3	77
Total	107	6	101
%	100%	6%	94%

Exit from External: 77
Enter from External: 24

Land Use D :

ITE LU Code: Restaurant LUC 931
Size: 180 Seats

	Total	Internal	External
Enter	45	3	42
Exit	41	7	34
Total	86	10	76
%	100%	12%	88%

Exit from External: 34
Enter from External: 42

Flow	Demand	Balanced	Demand
A → B	2% 1	0	1% 0
A → B	14% 1	0	17% 0
B → A	0% 0	0	0% 0
A → C	14% 1	1	17% 5
A → C	2% 1	1	1% 1
A → D	13% 1	1	8% 4
B → C	20% 0	0	50% 5
B → C	20% 0	0	4% 2
B → D	20% 0	0	5% 2
B → D	20% 0	0	4% 2
C → A	0% 0	0	0% 0
C → A	20% 5	2	4% 2
C → B	0% 0	5	14% 6
C → D	20% 16	2	5% 2
D → A	0% 0	0	0% 0
D → B	0% 0	0	0% 0
D → C	0% 0	0	0% 0

Net External Trips for Multi-Use Development

	LAND USE A	LAND USE B	LAND USE C	LAND USE D	TOTAL	
Enter	3	0	24	42	69	
Exit	3	0	77	34	114	
Total	**6**	**0**	**101**	**76**	**183**	***INTERNAL CAPTURE***
Single-Use Trip Gen. Est.	14	0	107	86	207	24

NELSON & POPE
ENGINEERS & SURVEYORS

Analyst: MCM

Date: 6/25/2018

MULTI-USE DEVELOPMENT
TRIP GENERATION
AND INTERNAL CAPTURE SUMMARY

Name of Development: Crest Town Center

Time Period: PM Peak BUILD

Land Use A :

ITE LU Code: Retail LUC 820
Size: 15,000 SF

	Total	Internal	External
Enter	18	13	5
Exit	20	11	9
Total	38	24	14
%	100%	63%	37%

Exit from External: 9
Enter from External: 5

Land Use B :

ITE LU Code:
Size:

	Total	Internal	External
Enter	0	0	0
Exit	0	0	0
Total	0	0	0
%	#DIV/0!	#DIV/0!	#DIV/0!

Exit from External: 0
Enter from External: 0

Land Use C :

ITE LU Code: Residential
Size: 266 Units

	Total	Internal	External
Enter	86	8	78
Exit	50	12	38
Total	136	20	116
%	100%	15%	85%

Exit from External: 38
Enter from External: 78

Land Use D :

ITE LU Code: Restaurant LUC 931
Size: 180 Seats

	Total	Internal	External
Enter	25	10	15
Exit	19	8	11
Total	44	18	26
%	100%	41%	59%

Exit from External: 11
Enter from External: 15

	Demand	Balanced	Demand
A → B	46% 8	0	42% 0
A → B	26% 5	0	10% 0
A → C	26% 5	5	10% 9
A → D	46% 8	8	42% 21
B → A	29% 6	6	50% 13
B → C	0% 0	0	0% 0
B → D	21% 0	0	16% 4
C → A	0% 0	0	0% 0
C → B	29% 5	5	41% 8
C → D	14% 12	3	18% 3
D → A	14% 0	0	18% 3
D → B	0% 0	0	0% 0
D → C	21% 11	4	16% 4

Net External Trips for Multi-Use Development

	LAND USE A	LAND USE B	LAND USE C	LAND USE D	TOTAL	
Enter	5	0	78	15	98	
Exit	9	0	38	11	58	
Total	**14**	**0**	**116**	**26**	**156**	***INTERNAL CAPTURE***
Single-Use Trip Gen. Est.	38	0	136	44	218	62

NELSON & POPE
ENGINEERS & SURVEYORS

Analyst: MCM

Date: 6/25/2018

MULTI-USE DEVELOPMENT
TRIP GENERATION
AND INTERNAL CAPTURE SUMMARY

Name of Development: Crest Town Center

Time Period: Saturday Peak BUILD

Land Use A :

ITE LU Code: Retail LUC 820
Size: 15,000 SF

	Total	Internal	External
Enter	26	20	6
Exit	24	13	11
Total	50	33	17
%	100%	66%	34%

Exit from External: 11
Enter from External: 6

Land Use B :

ITE LU Code:
Size:

	Total	Internal	External
Enter	0	0	0
Exit	0	0	0
Total	0	0	0
%	#DIV/0!	#DIV/0!	#DIV/0!

Exit from External: 0
Enter from External: 0

Land Use C :

ITE LU Code: Residential
Size: 266 Units

	Total	Internal	External
Enter	56	12	44
Exit	48	18	30
Total	104	30	74
%	100%	29%	71%

Exit from External: 30
Enter from External: 44

Land Use D :

ITE LU Code: Restaurant LUC 931
Size: 180 Seats

	Total	Internal	External
Enter	40	13	27
Exit	36	14	22
Total	76	27	49
%	100%	36%	64%

Exit from External: 22
Enter from External: 27

Direction	Demand	Balanced	Demand
A → B	46% 12	0	42% 0
A → C	26% 6	6	10% 6
A → D	29% 7	7	50% 20
B → A	0% 0	0	0% 0
B → C	21% 0	0	16% 6
B → D	14% 0	0	18% 6
C → A	14% 8	6	18% 6
C → B	29% 8	8	41% 15
C → D	21% 10	6	16% 6
D → A	46% 12	12	42% 20
D → B	0% 0	0	0% 0
D → C	26% 6	6	10% 6

Net External Trips for Multi-Use Development

	LAND USE A	LAND USE B	LAND USE C	LAND USE D	TOTAL	
Enter	6	0	44	27	77	
Exit	11	0	30	22	63	
Total	**17**	**0**	**74**	**49**	**140**	***INTERNAL CAPTURE***
Single-Use Trip Gen. Est.	50	0	104	76	230	90

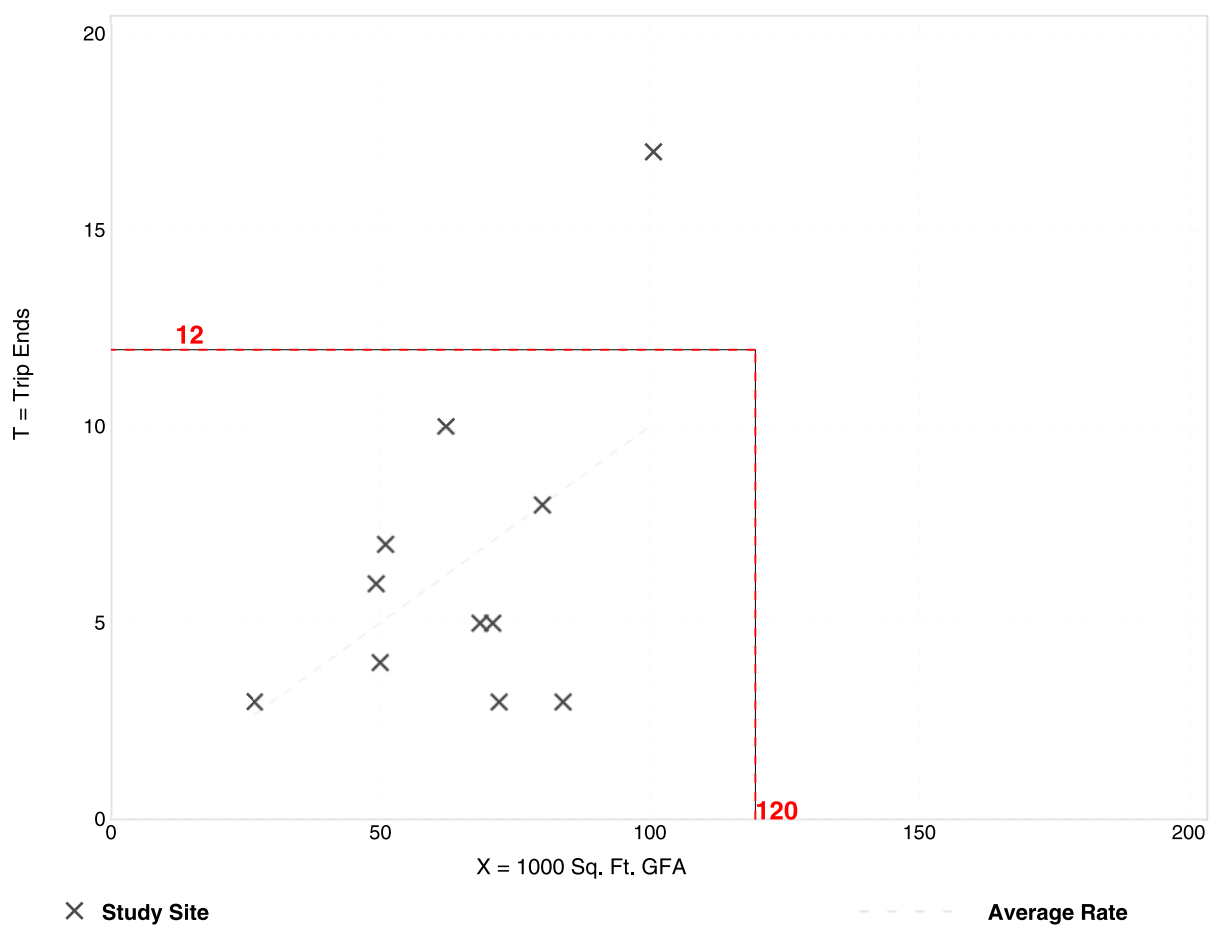
Mini-Warehouse
(151)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	11
Avg. 1000 Sq. Ft. GFA:	65
Directional Distribution:	60% entering, 40% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.10	0.04 - 0.17	0.05

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= ****

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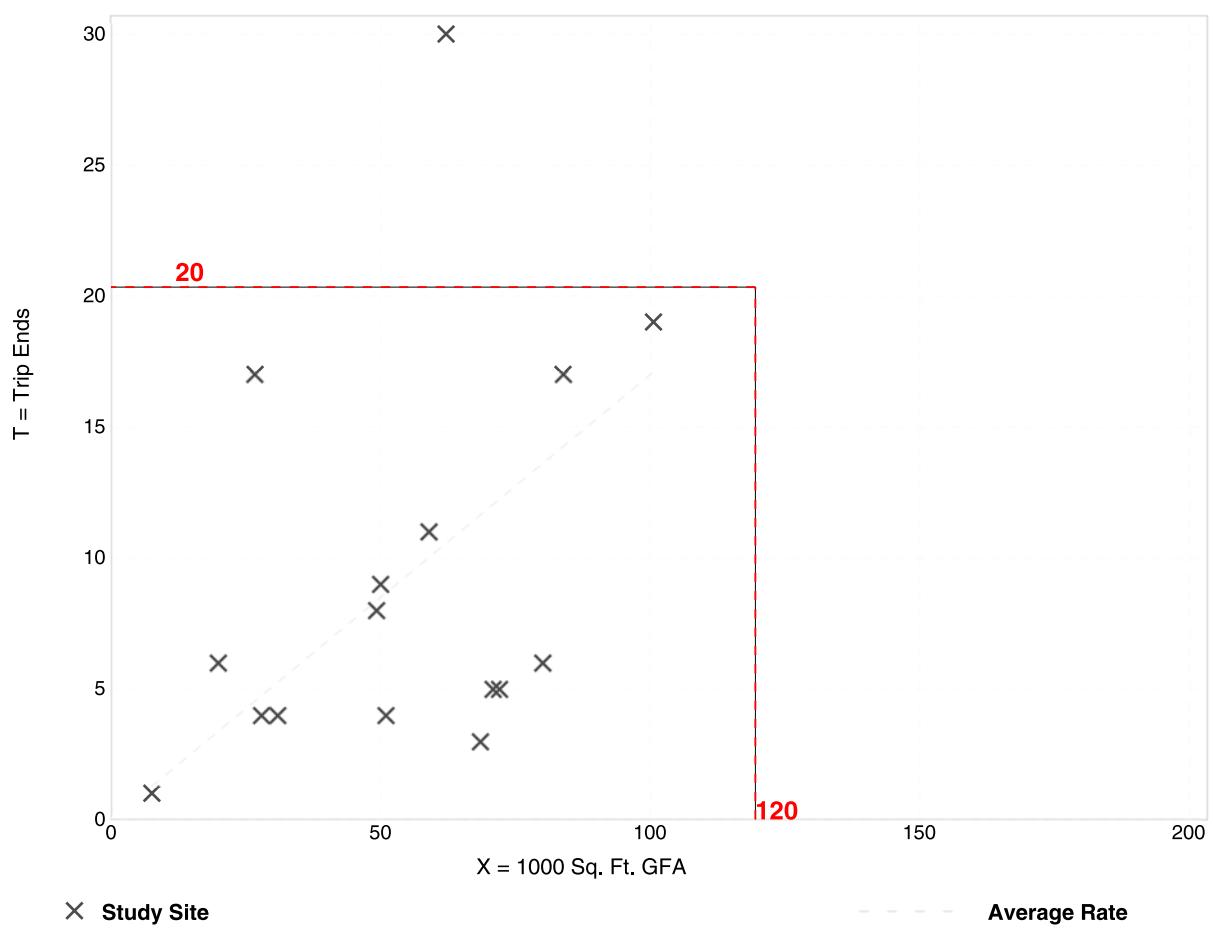
Mini-Warehouse
(151)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	16
Avg. 1000 Sq. Ft. GFA:	54
Directional Distribution:	47% entering, 53% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.17	0.04 - 0.64	0.14

Data Plot and Equation



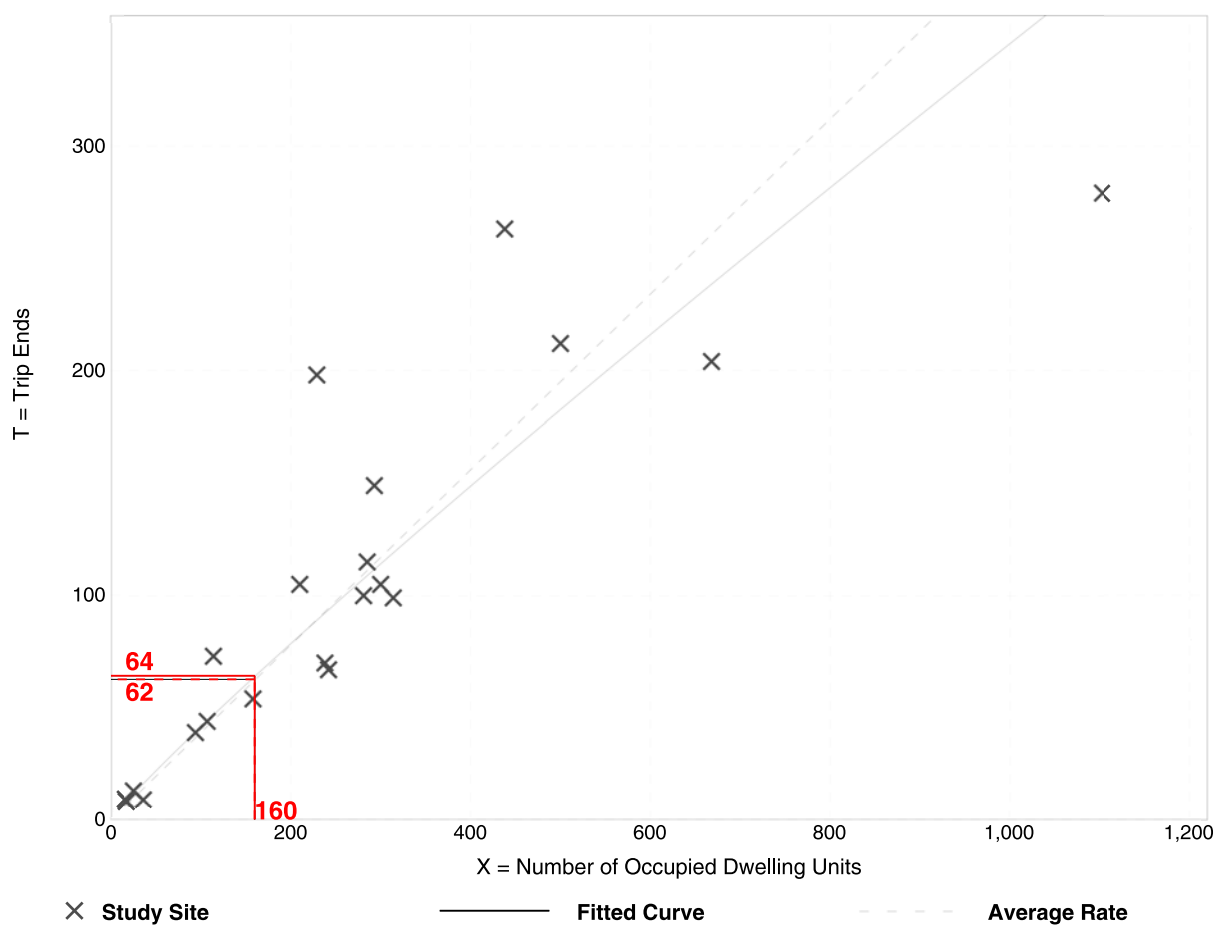
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs:	**Occupied Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	21
Avg. Num. of Occupied Dwelling Units:	270
Directional Distribution:	20% entering, 80% exiting

Vehicle Trip Generation per Occupied Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.39	0.25 - 0.86	0.15

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.92 Ln(X) - 0.51 **R^2= 0.92**

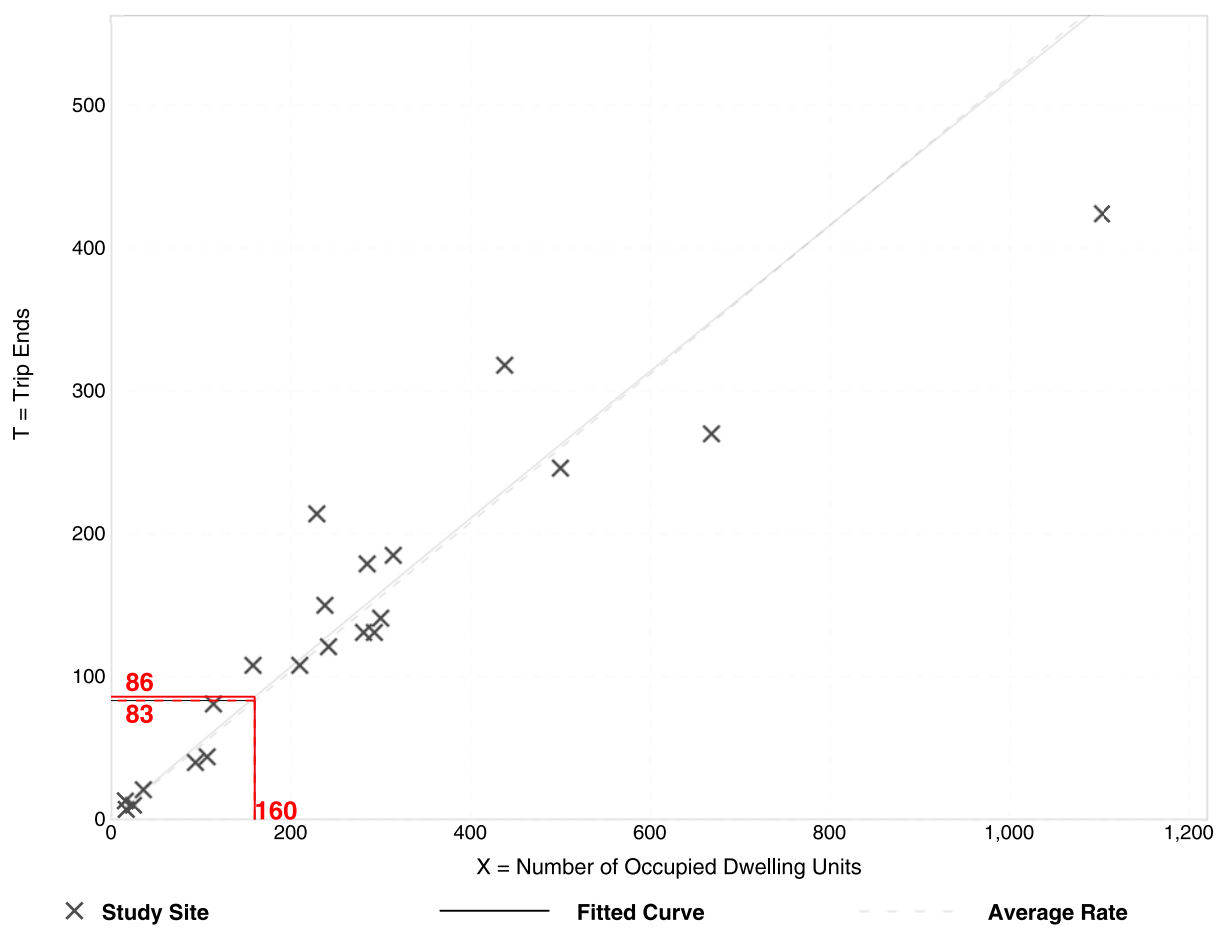
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs:	**Occupied Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	21
Avg. Num. of Occupied Dwelling Units:	270
Directional Distribution:	65% entering, 35% exiting

Vehicle Trip Generation per Occupied Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.52	0.38 - 0.93	0.14

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.98 Ln(X) - 0.52 **R^2= 0.95**

Multifamily Housing (Low-Rise)
(220)

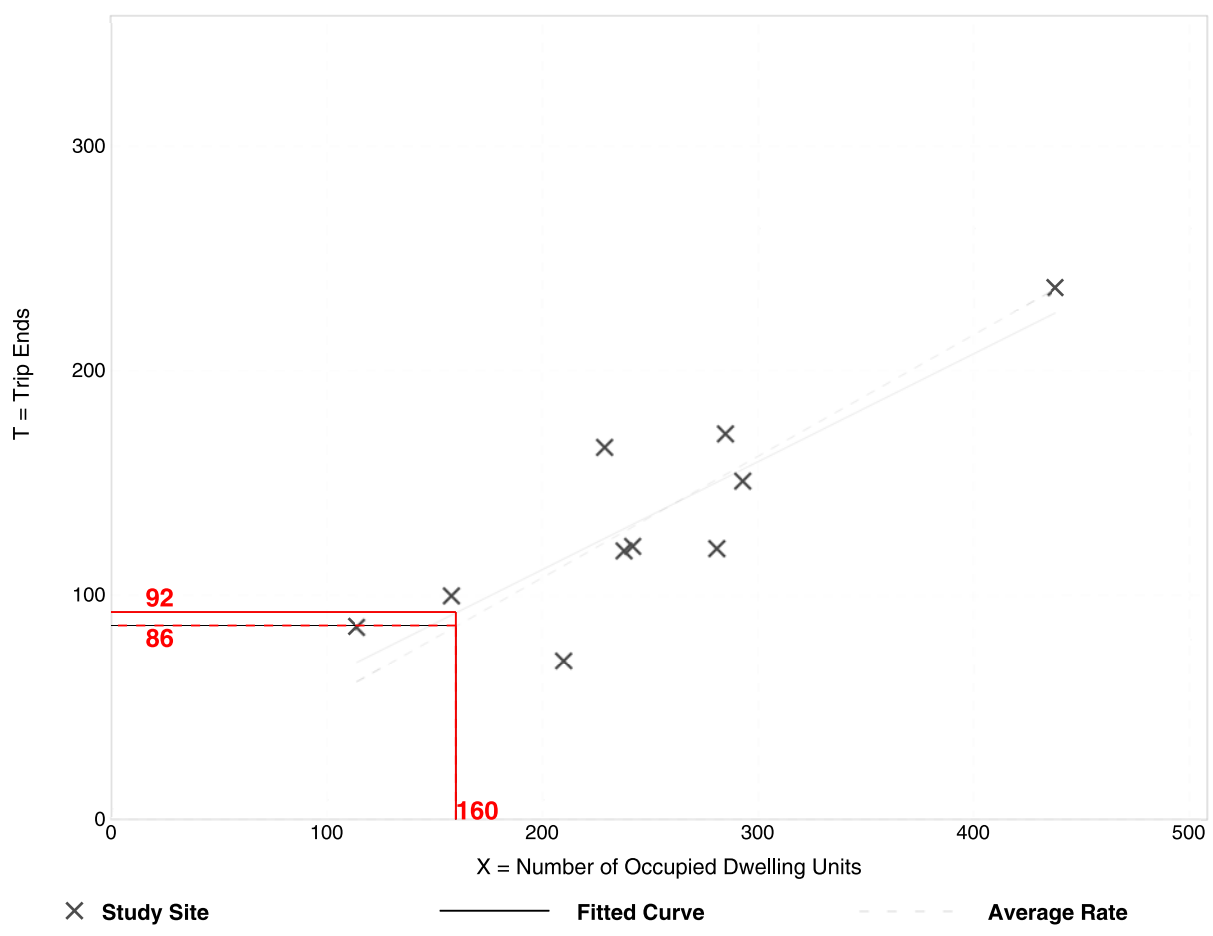
Vehicle Trip Ends vs: **Occupied Dwelling Units**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 10
Avg. Num. of Occupied Dwelling Units: 249
Directional Distribution: 54% entering, 46% exiting

Vehicle Trip Generation per Occupied Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.54	0.34 - 0.75	0.11

Data Plot and Equation



Fitted Curve Equation: T = 0.48(X) + 15.60 **R^2= 0.74**

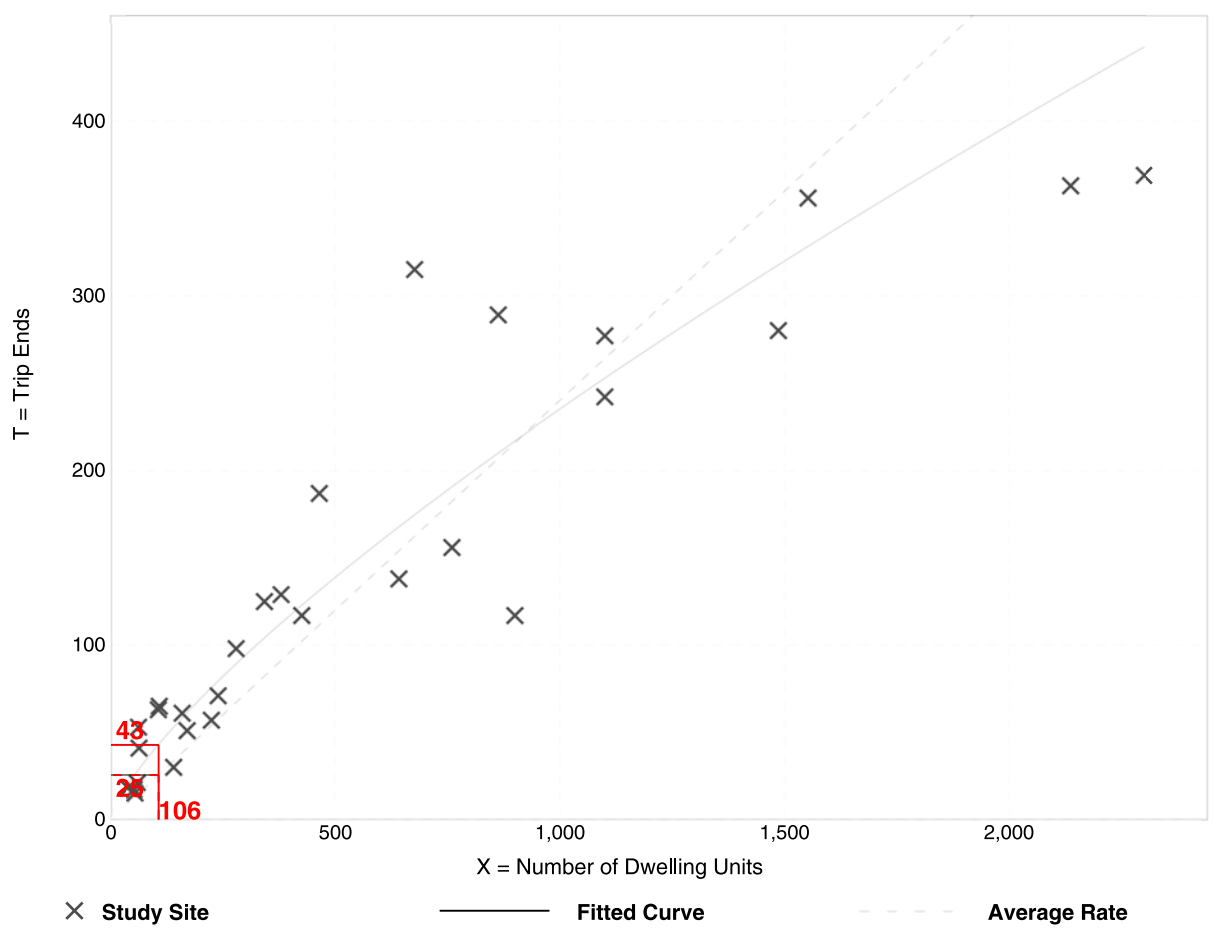
Senior Adult Housing - Detached
(251)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	29
Avg. Num. of Dwelling Units:	583
Directional Distribution:	33% entering, 67% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.24	0.13 - 0.84	0.10

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.76 Ln(X) + 0.21 **R^2= 0.89**

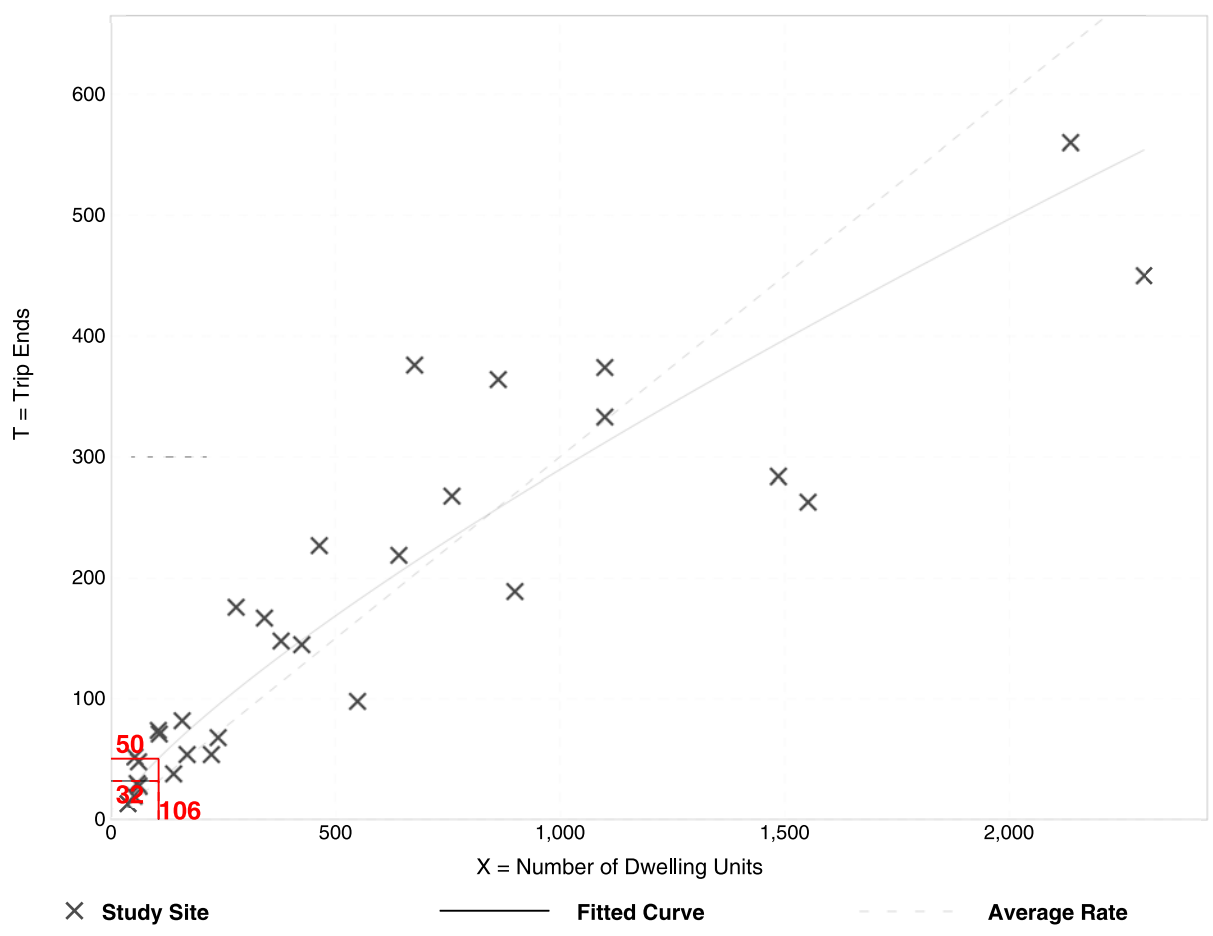
Senior Adult Housing - Detached
(251)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	30
Avg. Num. of Dwelling Units:	582
Directional Distribution:	61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.30	0.17 - 0.95	0.13

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.78 Ln(X) + 0.28 **R^2= 0.87**

Senior Adult Housing - Detached
(251)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Saturday, Peak Hour of Generator**

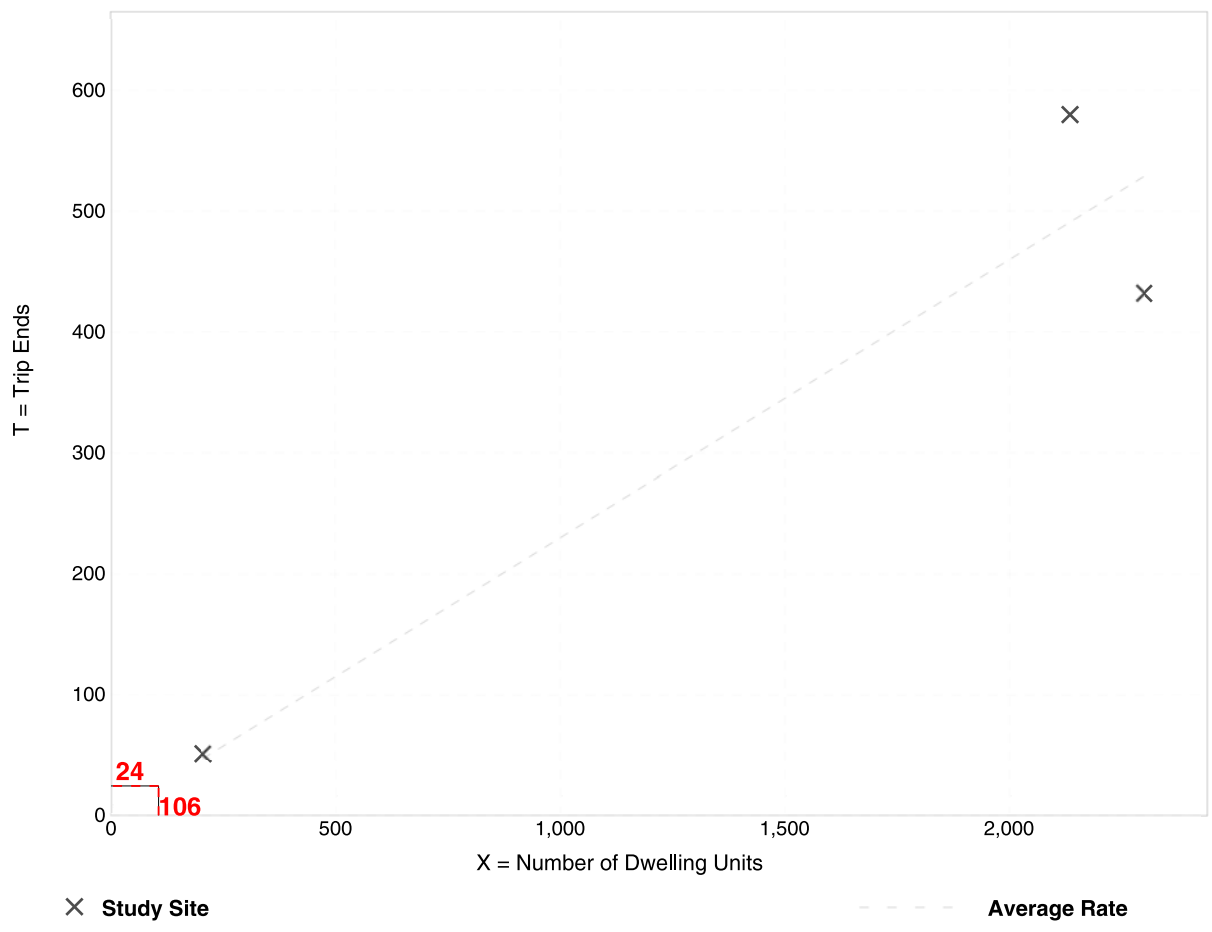
Setting/Location: **General Urban/Suburban**
Number of Studies: 3
Avg. Num. of Dwelling Units: 1547
Directional Distribution: 48% entering, 52% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.23	0.19 - 0.27	0.05

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= ****

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Assisted Living
(254)

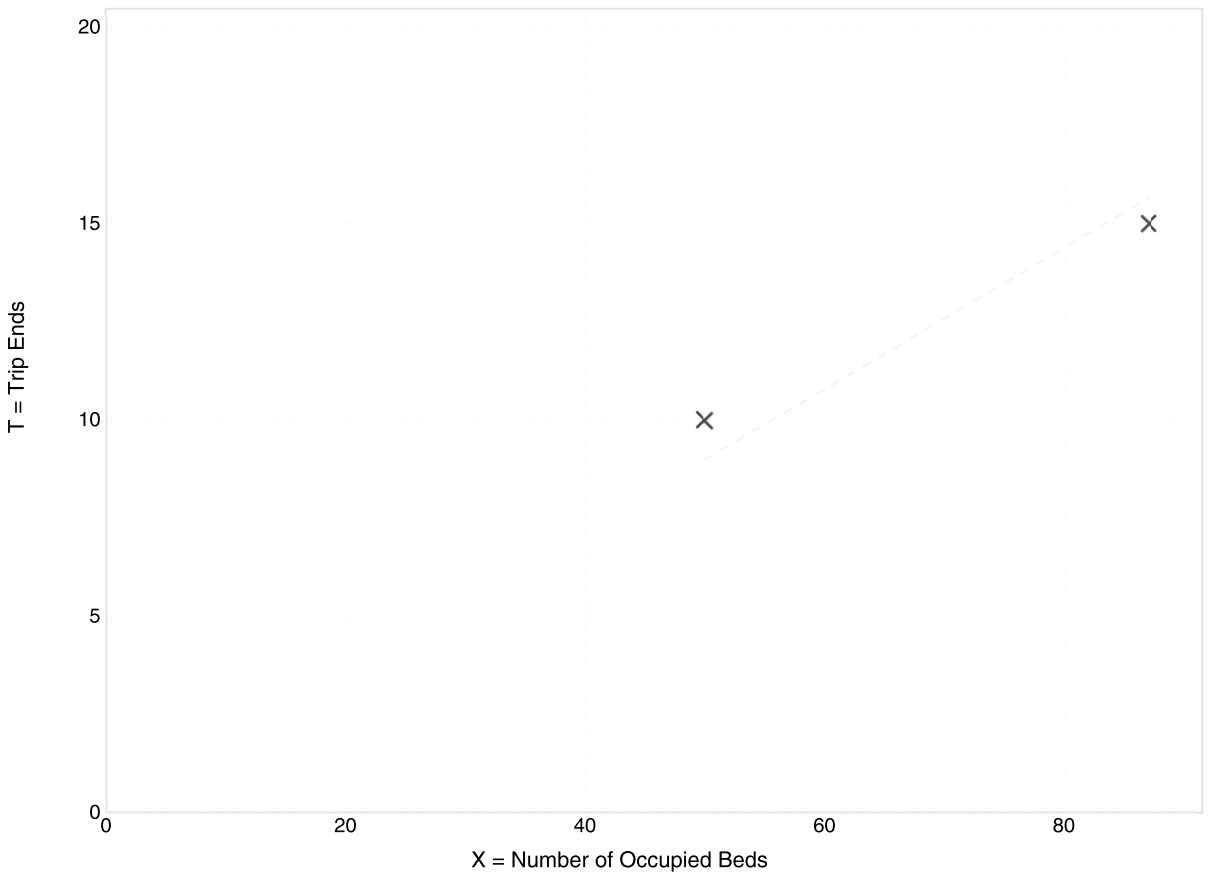
Vehicle Trip Ends vs:	**Occupied Beds**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	2
Avg. Num. of Occupied Beds:	69
Directional Distribution:	68% entering, 32% exiting

Vehicle Trip Generation per Occupied Bed

Average Rate	Range of Rates	Standard Deviation
0.18	0.17 - 0.20	*

Data Plot and Equation

Caution – Small Sample Size



× **Study Site** — — — **Average Rate**

Fitted Curve Equation: Not Given **R^2= ******

Assisted Living
(254)

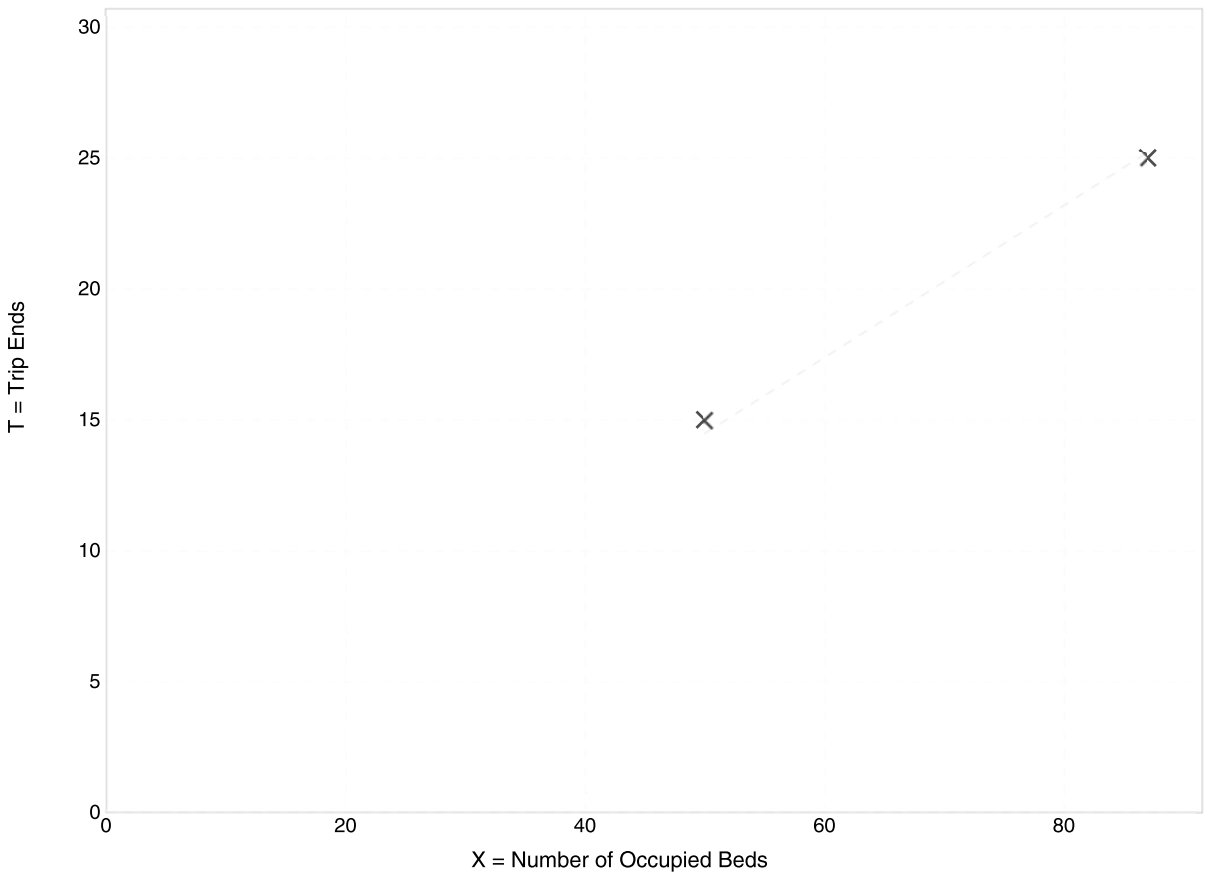
Vehicle Trip Ends vs:	**Occupied Beds**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	2
Avg. Num. of Occupied Beds:	69
Directional Distribution:	50% entering, 50% exiting

Vehicle Trip Generation per Occupied Bed

Average Rate	Range of Rates	Standard Deviation
0.29	0.29 - 0.30	*

Data Plot and Equation

Caution – Small Sample Size



× **Study Site** — — — **Average Rate**

Fitted Curve Equation: Not Given **R^2= ******

Assisted Living
(254)

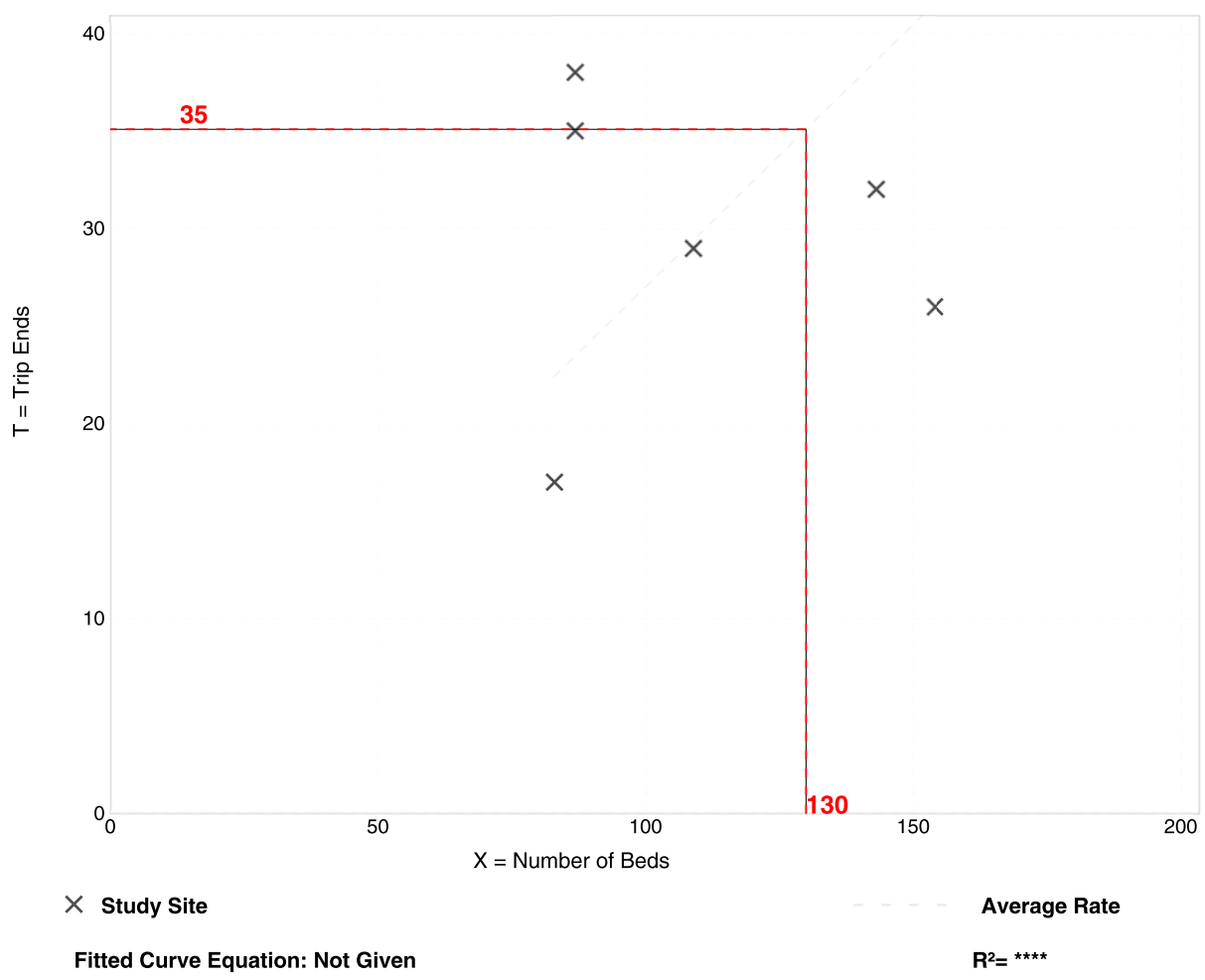
Vehicle Trip Ends vs: **Beds**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 6
Avg. Num. of Beds: 111
Directional Distribution: 46% entering, 54% exiting

Vehicle Trip Generation per Bed

Average Rate	Range of Rates	Standard Deviation
0.27	0.17 - 0.44	0.11

Data Plot and Equation



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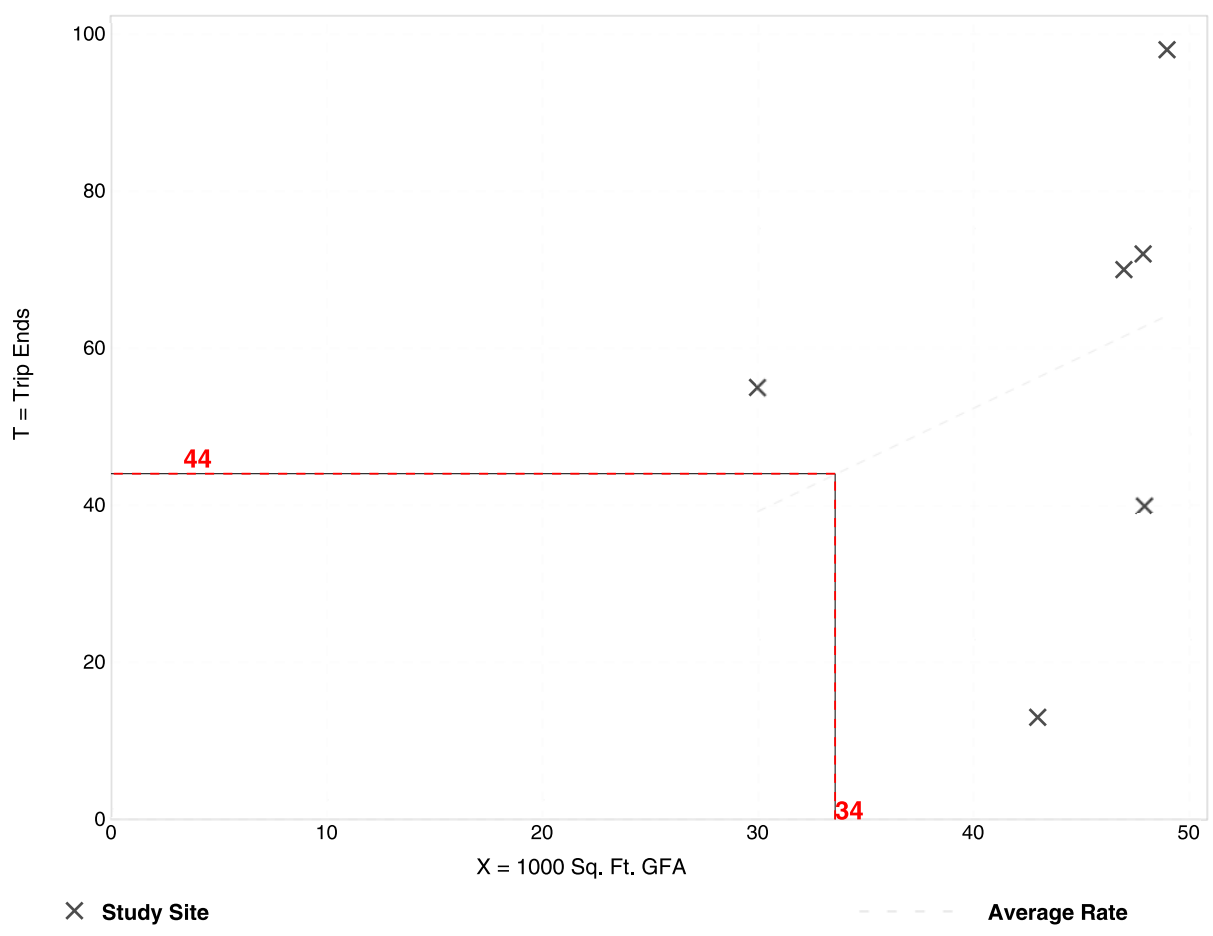
Health/Fitness Club
(492)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	6
Avg. 1000 Sq. Ft. GFA:	44
Directional Distribution:	51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.31	0.30 - 2.00	0.64

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= ****

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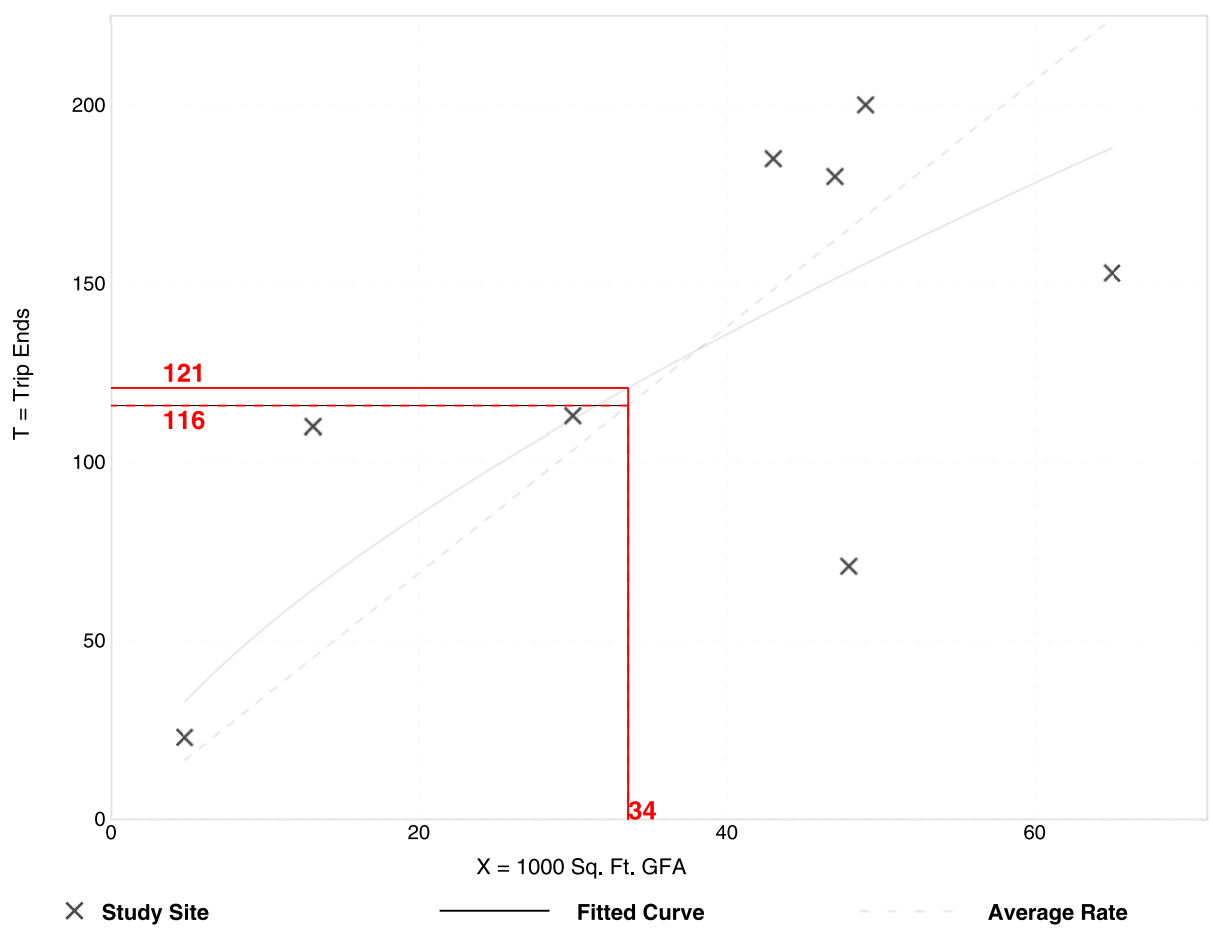
Health/Fitness Club
(492)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	8
Avg. 1000 Sq. Ft. GFA:	37
Directional Distribution:	57% entering, 43% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.45	1.48 - 8.37	1.57

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.67 Ln(X) + 2.44

R^2= 0.67

Health/Fitness Club
(492)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Saturday, Peak Hour of Generator**

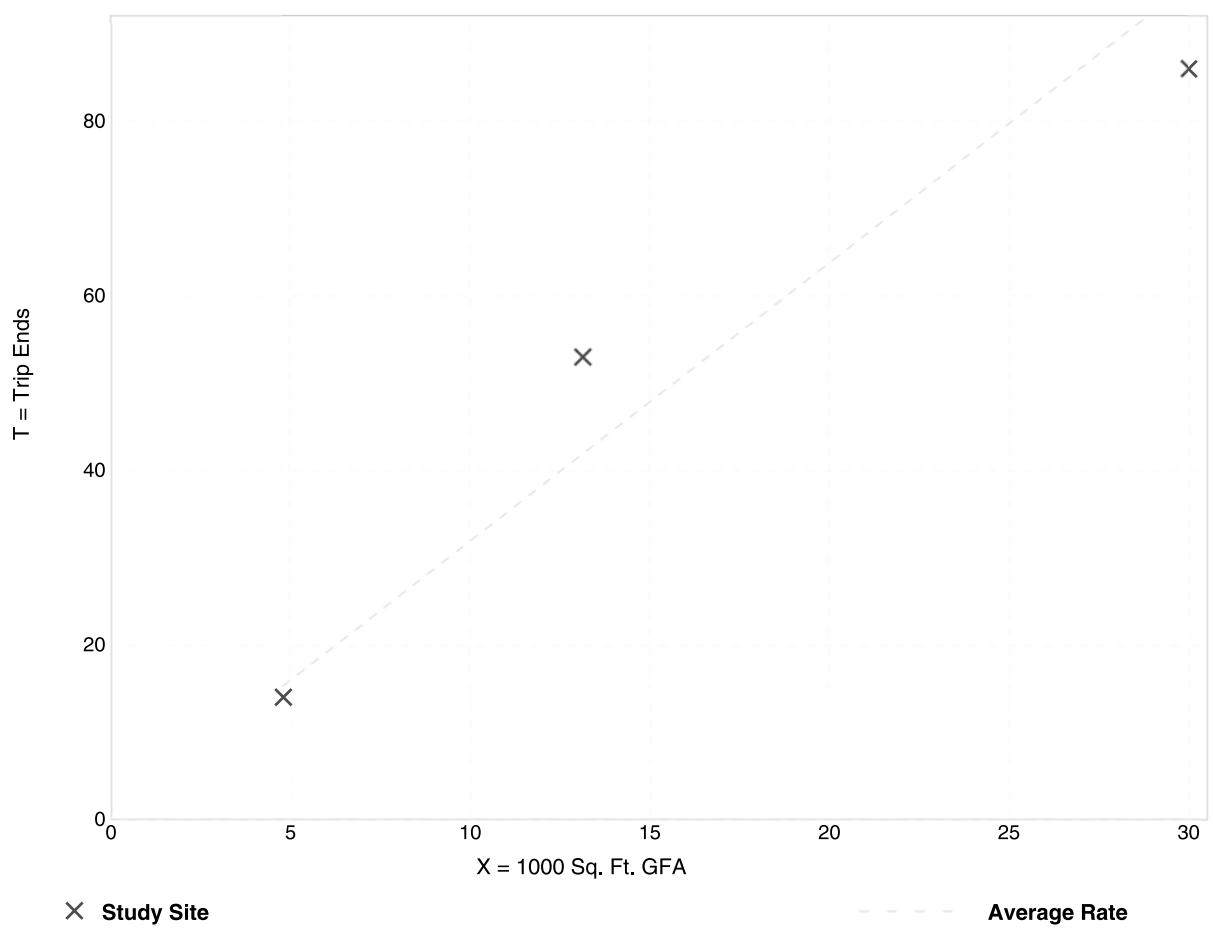
Setting/Location: **General Urban/Suburban**
Number of Studies: 3
Avg. 1000 Sq. Ft. GFA: 16
Directional Distribution: 49% entering, 51% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.19	2.87 - 4.03	0.63

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= ****

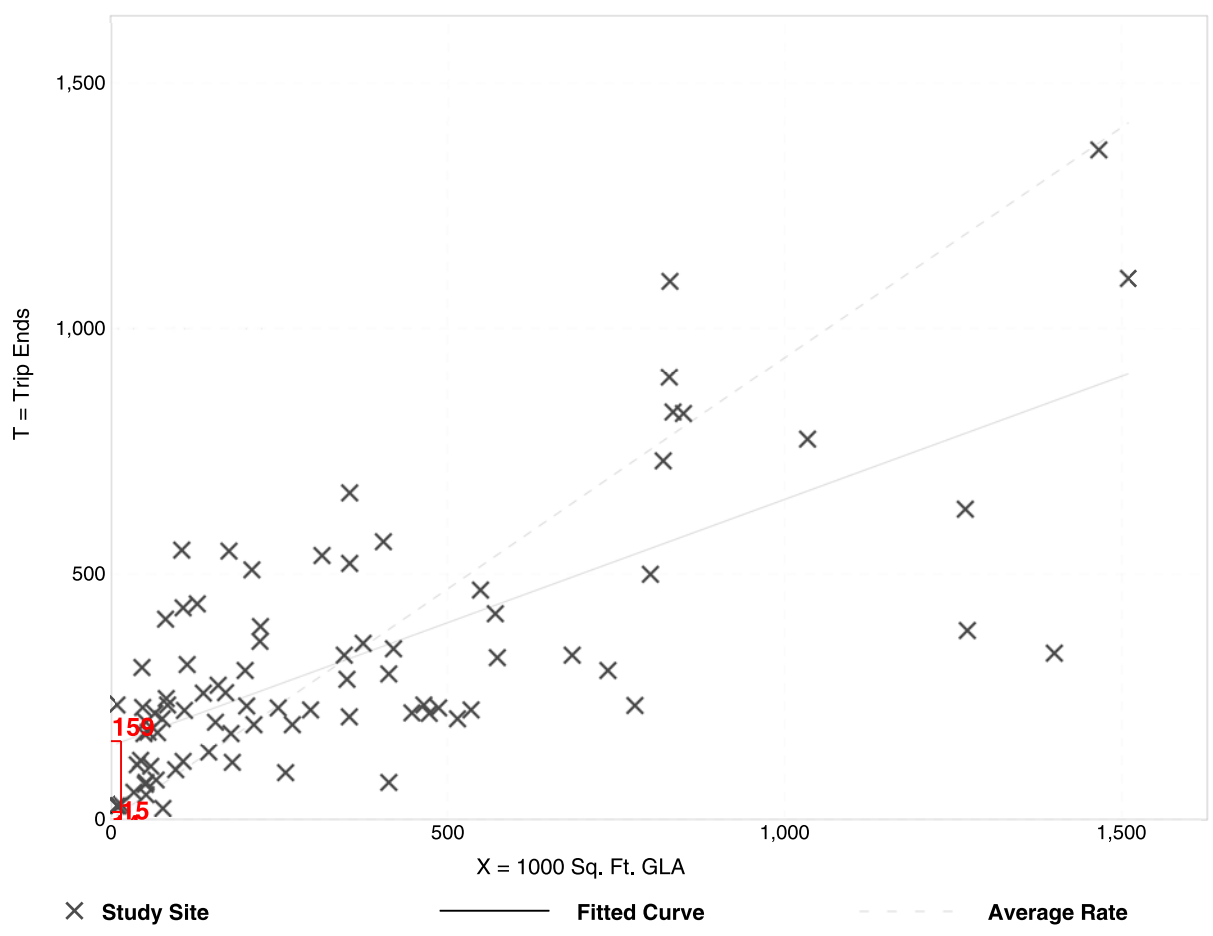
Shopping Center
(820)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GLA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	84
Avg. 1000 Sq. Ft. GLA:	351
Directional Distribution:	62% entering, 38% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
0.94	0.18 - 23.74	0.87

Data Plot and Equation



Fitted Curve Equation: T = 0.50(X) + 151.78

R^2= 0.50

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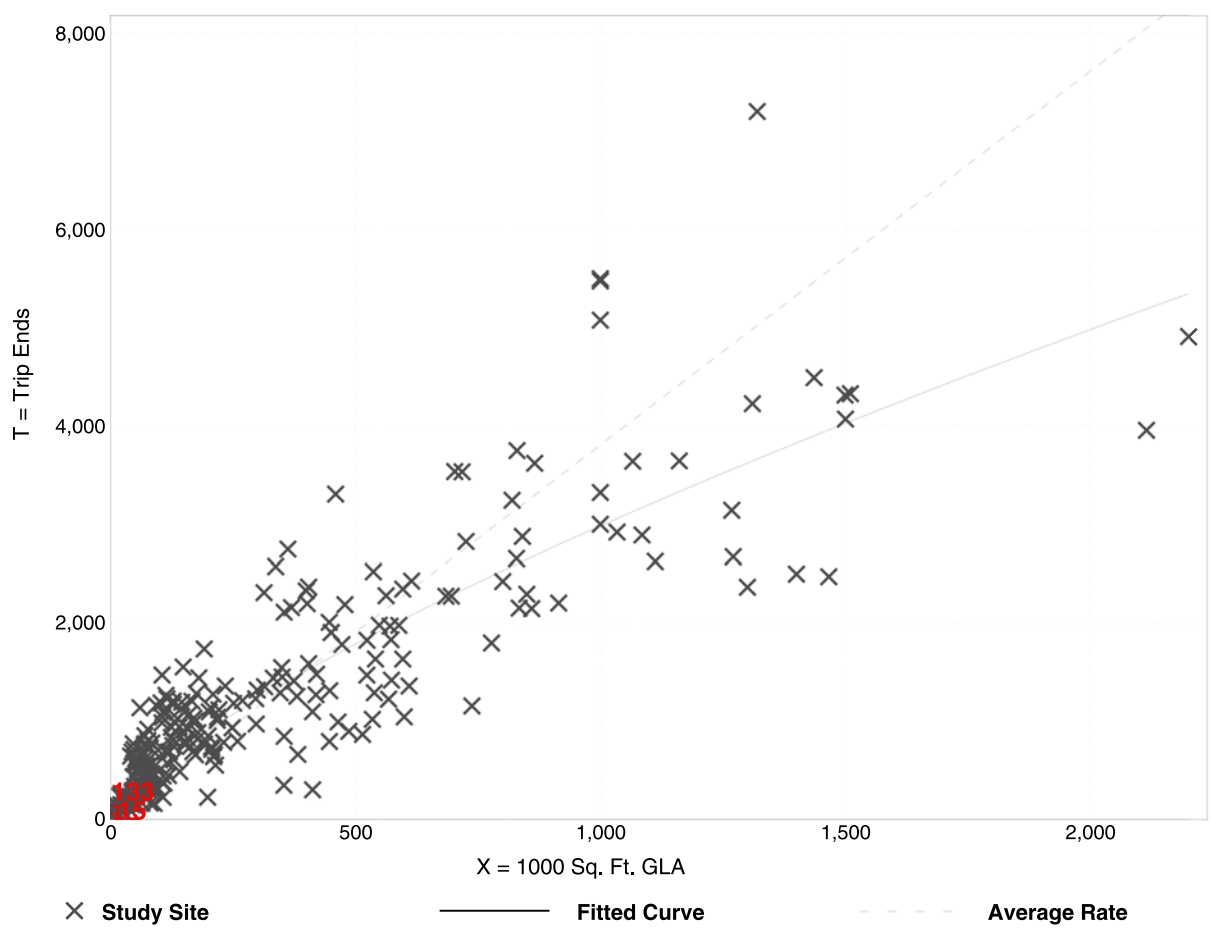
Shopping Center
(820)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GLA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	261
Avg. 1000 Sq. Ft. GLA:	327
Directional Distribution:	48% entering, 52% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
3.81	0.74 - 18.69	2.04

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.74 Ln(X) + 2.89 **R^2= 0.82**

Shopping Center
(820)

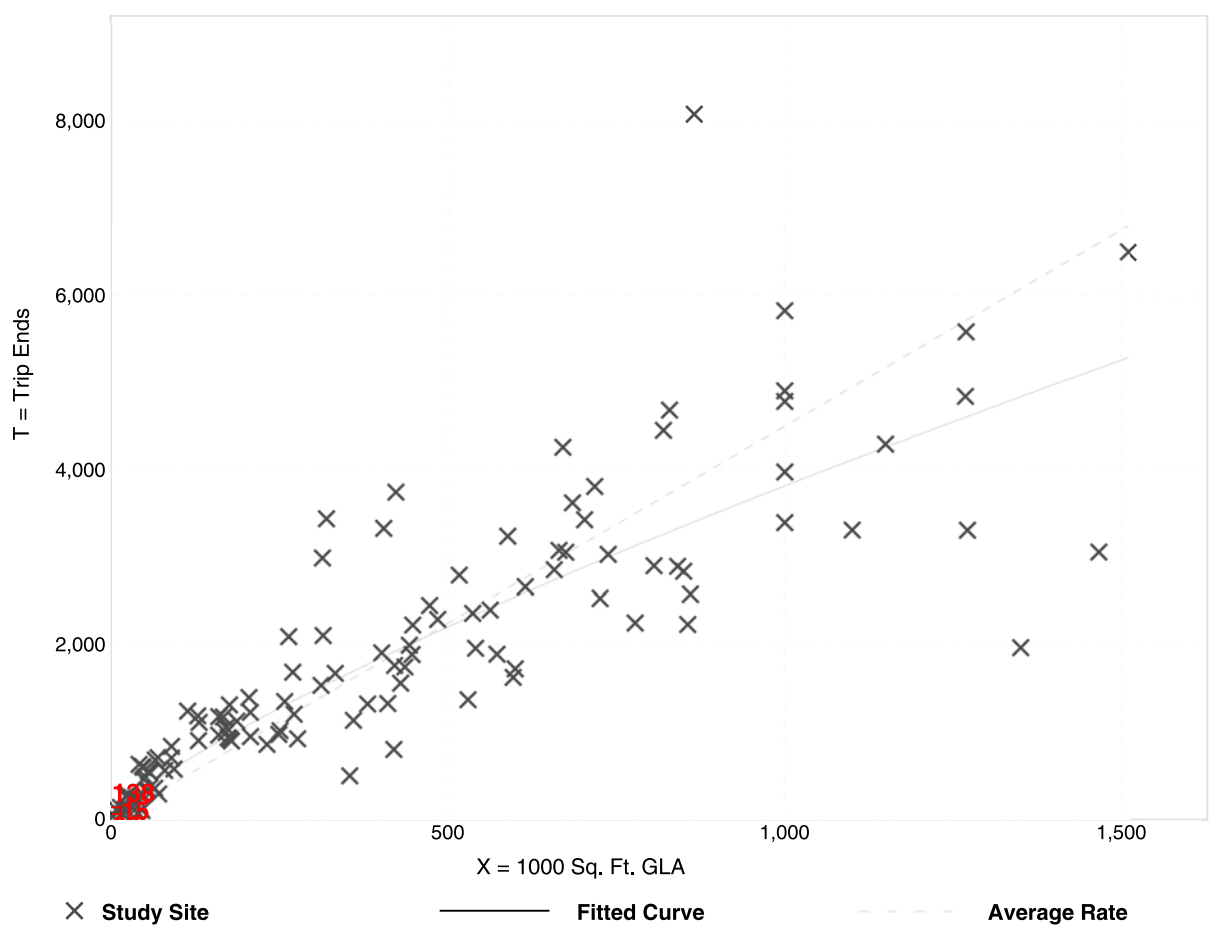
Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 119
Avg. 1000 Sq. Ft. GLA: 416
Directional Distribution: 52% entering, 48% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
4.50	1.42 - 15.10	1.88

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.79 Ln(X) + 2.79 **R^2= 0.87**

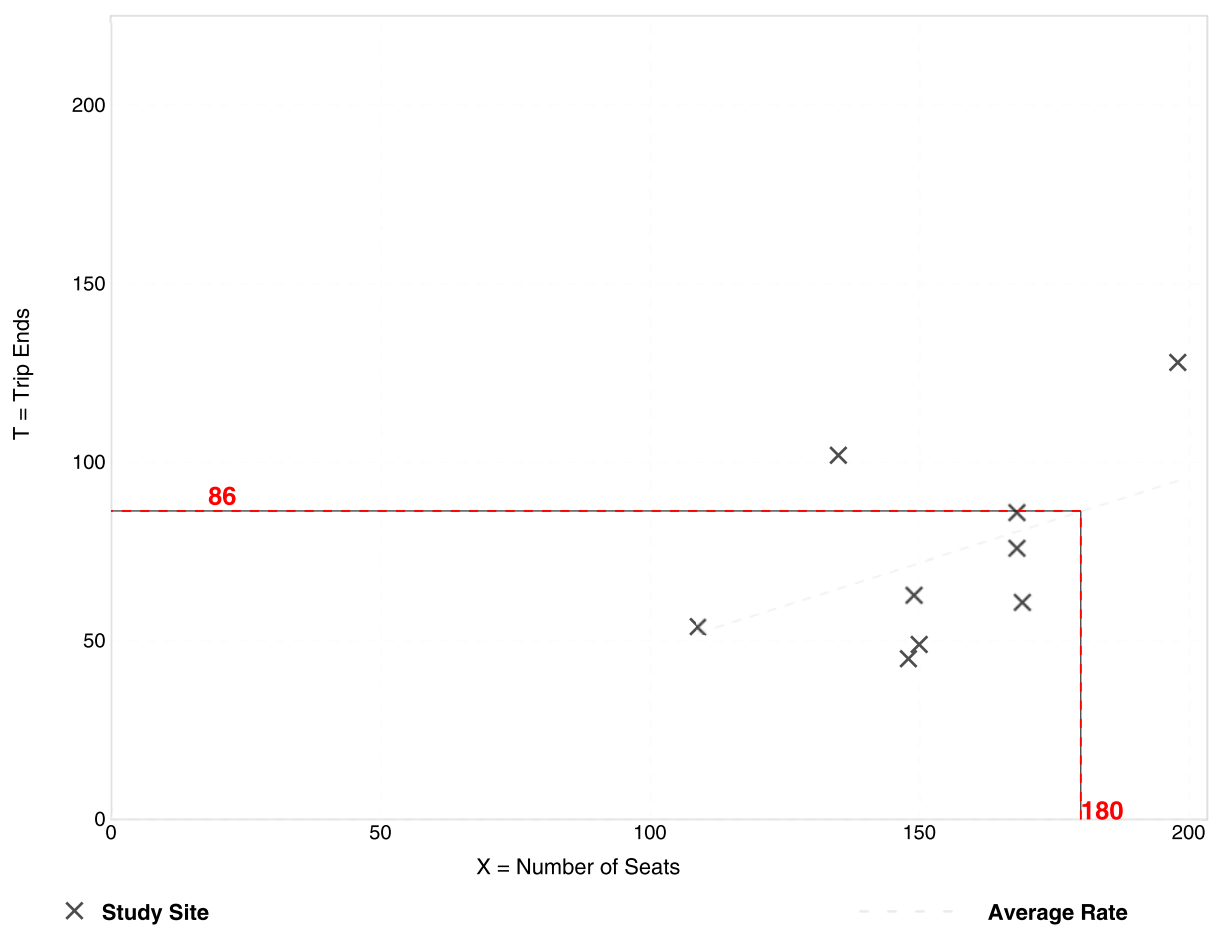
High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs:	**Seats**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	9
Avg. Num. of Seats:	155
Directional Distribution:	52% entering, 48% exiting

Vehicle Trip Generation per Seat

Average Rate	Range of Rates	Standard Deviation
0.48	0.30 - 0.76	0.15

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= ****

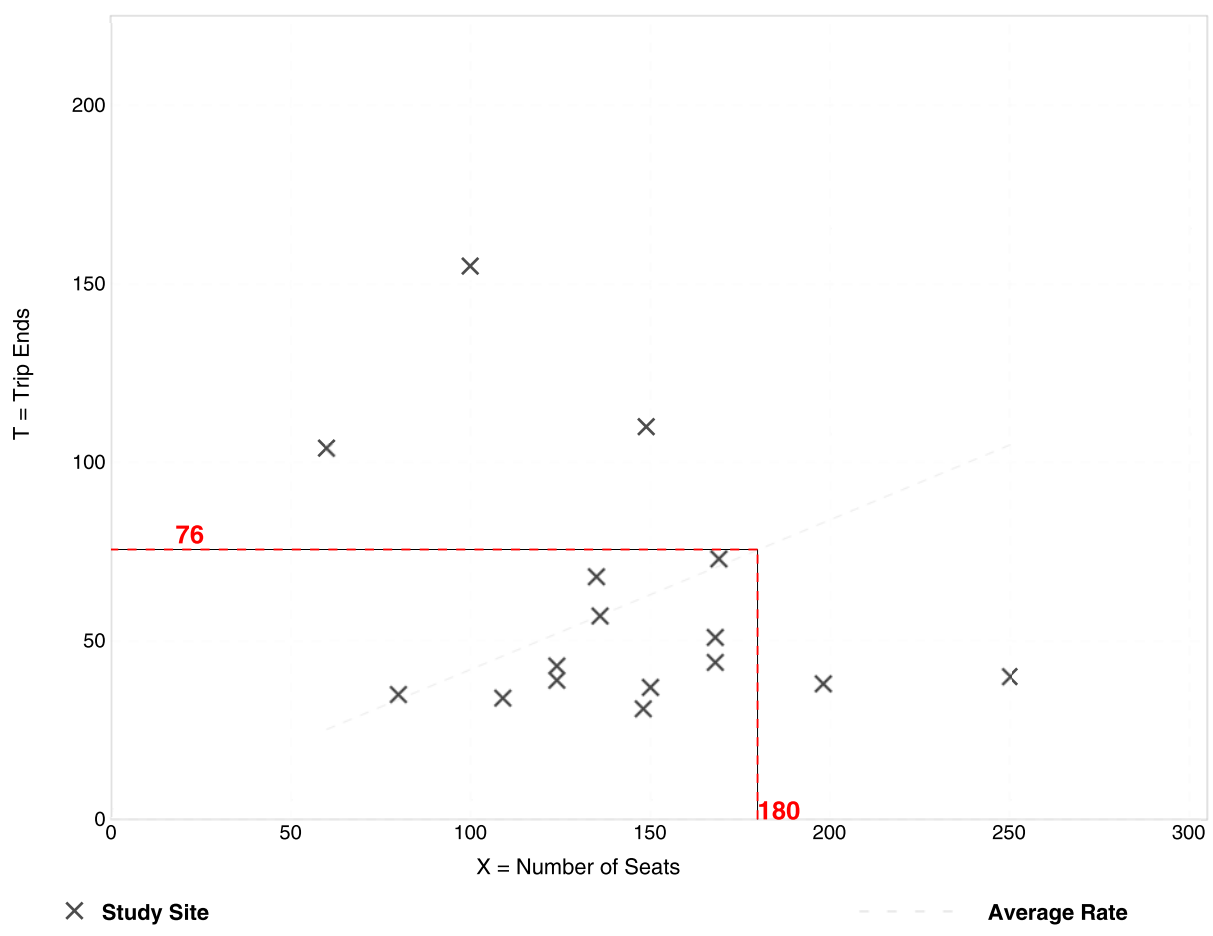
High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs:	**Seats**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	16
Avg. Num. of Seats:	142
Directional Distribution:	57% entering, 43% exiting

Vehicle Trip Generation per Seat

Average Rate	Range of Rates	Standard Deviation
0.42	0.16 - 1.73	0.37

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= ****

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High-Turnover (Sit-Down) Restaurant
(932)

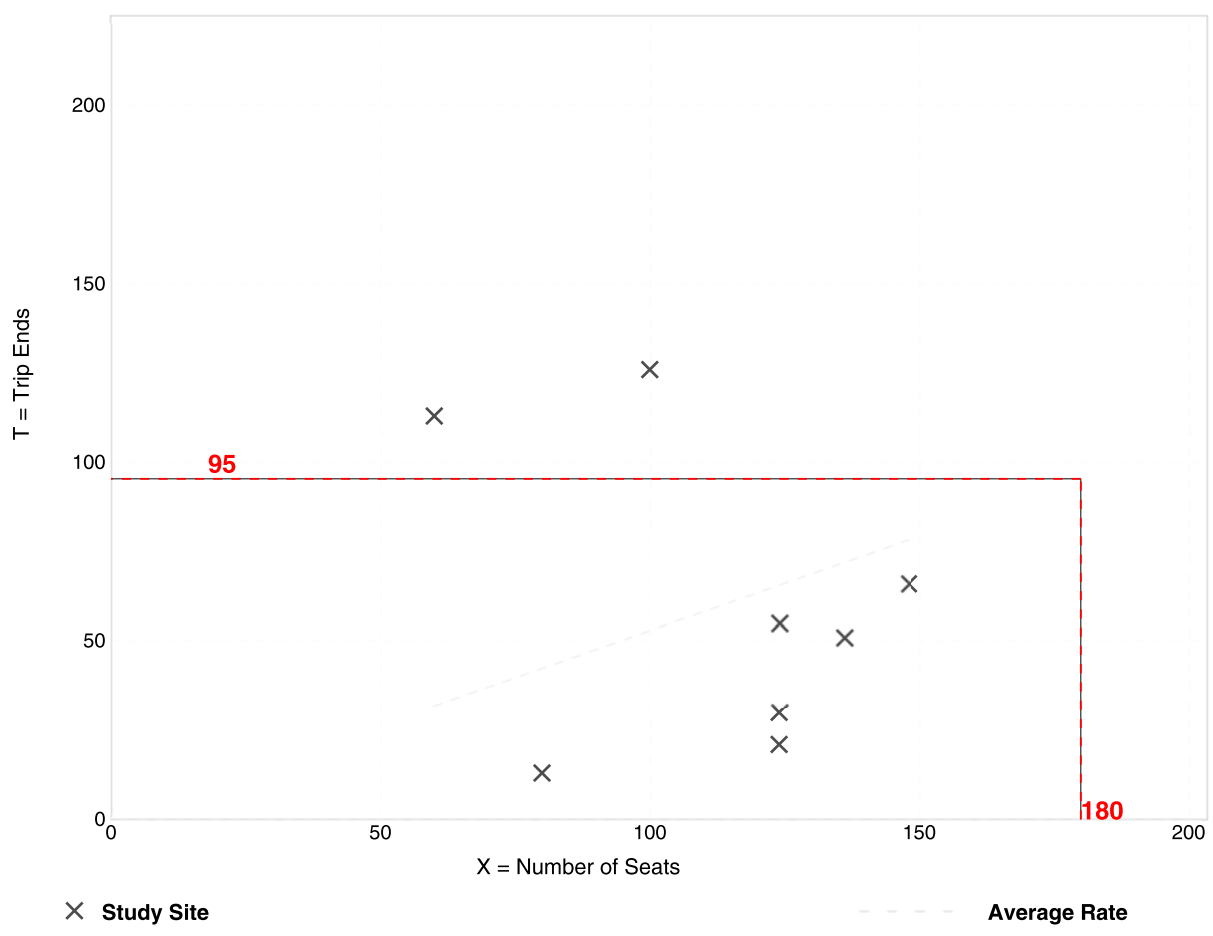
Vehicle Trip Ends vs: **Seats**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 8
Avg. Num. of Seats: 112
Directional Distribution: 53% entering, 47% exiting

Vehicle Trip Generation per Seat

Average Rate	Range of Rates	Standard Deviation
0.53	0.16 - 1.88	0.51

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= ****

Appendix C: Level of Service Definitions

LEVEL OF SERVICE: SIGNALIZED INTERSECTIONS

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. The levels of service range between level of service A (relatively congestion-free) and level of service F (congested).

The delay experienced by a motorist is made up of a number of factors that relate to control, geometry, traffic, and incidents at an intersection. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during ideal conditions: in the absence of traffic control, in the absence of geometric delay, in the absence of any incidents, and when there are no other vehicles on the road. The portion of the total delay attributed to the control facility is called the control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Control delay may also be referred to as signal delay for signalized intersections.

Level of service criteria for signalized intersections is determined in terms of the average control delay per vehicle. The following average control delays are used to determine approach levels of service:

Control Delay (s/veh)	**LOS by Volume-to-Capacity Ratio***	
	≤1.0	**>1.0**
≤ 10	A	F
> 10 – 20	B	F
> 20-35	C	F
> 35-55	D	F
> 55 – 80	E	F
> 80	F	F

Note: *For approach-based and intersectionwide assessments, LOS is defined solely by control delay.

Level of Service A describes operations with very low control delay. This occurs when progression is extremely favorable; most vehicles arrive during the green phase and do not stop at all. Short traffic signal cycles may contribute to low delay.

Level of Service B generally occurs with good progression and/or short traffic signal cycle lengths. More vehicles stop than for level of service A, causing higher average delays.

Level of Service C has higher delays than level of service B. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures, where motorists are required to wait through an entire signal cycle, may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.

Level of Service D At this level, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths or high volume-to-capacity ratios. The proportion of stopping vehicles increases. Individual cycle failures are noticeable.

Level of Service E is considered the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths and high volume-to-capacity ratios. Individual cycle failures occur frequently.

Level of Service F is considered unacceptable to most drivers. This condition often occurs with over saturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may occur at volume to capacity ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

LEVEL OF SERVICE: TWO WAY STOP CONTROLLED INTERSECTIONS

The quality of traffic service at a two-way stop controlled, or "TWSC," intersection is measured according to the level of service and capacity of individual legs. The level of service ranges from LOS A to LOS F, just as with signalized intersections.

The right of way at the TWSC intersection is controlled by stop signs on two opposing legs of an intersection (on one leg of a "T"-type intersection). The capacity of a controlled leg is based on the distribution of gaps in the major street traffic flow, driver judgment in selecting a gap through which to execute the desired maneuver and the follow up time required by each driver in a queue.

The level of service for a TWSC intersection is determined by the computed or measured control delay and is defined for each minor movement. Level of service is not defined for the intersection as a whole. The delay experienced by a motorist is made up of a number of factors that relate to control, geometry, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during conditions with ideal geometry and in the absence of incidents, control, and traffic. This program only quantifies that portion of the total delay attributed to traffic control measures, either traffic signals or stop signs. This delay is called control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration. Average control delay for any particular minor movement is a function of the approach and the degree of saturation.

The expectation is that TWSC intersections are designed to carry smaller traffic volumes than signalized intersections. Therefore, the delay threshold times are lower for the same LOS grades. The following average control delays are used to determine approach levels of service:

Level of Service A	$\leq$ 10 seconds per vehicle
Level of Service B	> 10 and $\leq$ 15 seconds per vehicle
Level of Service C	> 15 and $\leq$ 25 seconds per vehicle
Level of Service D	> 25 and $\leq$ 35 seconds per vehicle
Level of Service E	> 35 and $\leq$ 50 seconds per vehicle
Level of Service F	> 50 seconds per vehicle

Appendix D: Capacity Analysis/Level of Service Worksheets

LOS SUMMARY - AM Peak Hour Analysis

NELSON & POPE

Crest Town Center 16212			LEVELS OF SERVICE AND DELAY							
			Existing		No Build		Build		Build w/ Mitigation	
Signalized Intersections	**Approach**	**Movt.**	**Delay** Sec/Veh	**LOS**	**Delay** Sec/Veh	**LOS**	**Delay** Sec/Veh	**LOS**	**Delay** Sec/Veh	**LOS**
Sills Road (CR 101) at Station Road	EB	L	54.6	D	57.8	E	57.8	E	-	-
		T	21.9	C	21.9	C	23.6	C	-	-
		R	0.0	A	0.0	A	0.0	A	-	-
	WB	L	41.5	D	43.2	D	48.1	D	-	-
		T	20.3	C	21.5	C	21.5	C	-	-
		R	0.0	A	0.0	A	0.0	A	-	-
	NB	L	18.1	B	19.2	B	19.4	B	-	-
		T	23.9	C	25.4	C	28.3	C	-	-
		R	2.5	A	2.9	A	3.5	A	-	-
	SB	LTR	43.5	D	56.2	E	62.6	E	-	-
	Intersection		28.2	C	31.8	C	34.4	C	-	-
Woodside Ave (CR 99) at Station Road	EB	L	32.5	C	32.8	C	32.9	C	34.1	C
		T	29.9	C	30.1	C	30.3	C	31.4	C
		R	0.4	A	0.7	A	1.5	A	1.7	A
	WB	L	35.2	D	35.8	D	36.0	D	37.4	D
		T	19.8	B	22.9	C	22.9	C	23.9	C
		R	0.1	A	0.1	A	0.2	A	0.2	A
	NB	L	21.7	C	24.7	C	33.2	C	33.6	C
		TR	37.4	D	41.6	D	72.4	E	53.3	D
	SB	L	13.7	B	14.0	B	15.2	B	14.8	B
		TR	56.3	E	69.1	E	88.7	F	47.9	D
	Intersection		33.2	C	37.8	D	50.4	D	37.4	D
Woodside Ave (CR 99) at Sawgrass Dr/S Village Dr	EB	L	7.2	A	7.6	A	8.2	A	-	-
		T	4.9	A	5.0	A	5.4	A	-	-
		R	0.8	A	0.9	A	0.9	A	-	-
	WB	L	5.0	A	5.2	A	5.5	A	-	-
		T	4.9	A	4.9	A	5.4	A	-	-
		R	0.5	A	0.5	A	0.6	A	-	-
	NB	L	21.7	C	21.7	C	26.2	C	-	-
		TR	18.1	B	18.0	B	15.4	B	-	-
	SB	L	20.6	C	20.7	C	20.0	B	-	-
		T	20.0	B	20.0	B	19.6	B	-	-
		R	9.9	A	9.9	A	8.8	A	-	-
	Intersection		8.0	A	8.1	A	9.1	A	-	-
Farber Drive/Driveway Access at Station Road	EB	LT	32.8	C	33.1	C	33.1	C	-	-
		R	5.7	A	5.6	A	5.6	A	-	-
	WB	LTR	0.0	A	0.0	A	0.0	A	-	-
	NB	L	3.1	A	3.2	A	3.3	A	-	-
		T	4.9	A	5.2	A	5.5	A	-	-
		R	0.0	A	0.0	A	0.0	A	-	-
	SB	LTR	7.1	A	7.7	A	8.0	A	-	-
	Intersection		6.8	A	7.1	A	7.3	A	-	-
NY 27 North Service Road at Station Road	WB	LT	43.9	D	46.7	D	52.1	D	-	-
		R	32.2	C	32.9	C	33.6	C	-	-
	NB	L	7.1	A	7.9	A	8.3	A	-	-
		TR	8.8	A	9.3	A	9.9	A	-	-
	SB	L	12.0	B	12.0	B	12.0	B	-	-
		T	18.8	B	20.2	C	21.1	C	-	-
		R	3.6	A	3.5	A	3.3	A	-	-
	Intersection		17.5	B	18.6	B	19.8	B	-	-
NY 27 South Service Road at Station Road	EB	L	42.7	D	49.8	D	75.0	E	54.5	D
		TR	122.6	F	163.3	F	176.1	F	124.3	F
	WB	LTR	0.2	A	0.2	A	0.2	A	0.2	A
	NB	L	9.0	A	8.5	A	8.5	A	9.5	A
		TR	24.0	C	26.1	C	28.4	C	33.3	C
	SB	L	7.1	A	7.7	A	10.5	B	12.9	B
		TR	13.9	B	14.6	B	14.1	B	15.9	B
	Intersection		40.8	D	50.3	D	55.8	E	45.9	D

LOS SUMMARY - AM Peak Hour Analysis

NELSON & POPE

			LEVELS OF SERVICE AND DELAY					
Crest Town Center 16212			**Existing**		**No Build**		**Build**	
Unsignalized Intersections	**Approach**	**Movt.**	**Delay** Sec/Veh	**LOS**	**Delay** Sec/Veh	**LOS**	**Delay** Sec/Veh	**LOS**
NY 27 North Service Road at Westbound Exit 56	NB	LR	11.1	B	11.2	B	11.6	B
South Village Drive at Site Access	EB	LR	-	-	-	-	9.0	A
	NB	L	-	-	-	-	0.0	A
Station Road at Site Access	WB	L	-	-	-	-	31.6	D
		R	-	-	-	-	13.2	B
	SB	LT	-	-	-	-	1.2	A
NY27 North Service Rd at Site Exit	SB	R	-	-	-	-	10.8	B
NY27 North Service Rd at Site Access	EB	LT	-	-	-	-	3.9	A
	WB	TR	-	-	-	-	0.0	A
	SB	LR	-	-	-	-	8.5	A

LOS SUMMARY - PM Peak Hour Analysis

NELSON & POPE

Crest Town Center 16212			LEVELS OF SERVICE AND DELAY							
			Existing		No Build		Build		Build w/ Mitigation	
Signalized Intersections	**Approach**	**Movt.**	**Delay** Sec/Veh	**LOS**	**Delay** Sec/Veh	**LOS**	**Delay** Sec/Veh	**LOS**	**Delay** Sec/Veh	**LOS**
Sills Road (CR 101) at Station Road	EB	L	46.8	D	52.0	D	56.5	E	52.2	D
		T	25.4	C	26.9	C	29.2	C	29.5	C
		R	0.0	A	0.0	A	0.0	A	0.0	A
	WB	L	49.5	D	54.6	D	55.7	E	48.2	D
		T	26.9	C	28.3	C	28.7	C	28.6	C
		R	0.0	A	0.0	A	0.0	A	0.0	A
	NB	L	17.7	B	17.3	B	17.1	B	18.2	B
		T	22.8	C	22.1	C	21.9	C	22.9	C
		R	4.1	A	5.1	A	5.4	A	5.0	A
	SB	LTR	35.8	D	36.5	D	38.9	D	43.1	D
	Intersection		29.4	C	30.9	C	32.5	C	32.8	C
Woodside Ave (CR 99) at Station Road	EB	L	37.5	D	38.5	D	39.2	D	37.4	D
		T	33.6	C	34.6	C	35.9	D	34.9	C
		R	2.3	A	2.8	A	4.2	A	4.4	A
	WB	L	39.9	D	41.7	D	43.4	D	51.0	D
		T	26.5	C	25.9	C	26.5	C	27.6	C
		R	1.3	A	1.5	A	2.4	A	2.9	A
	NB	L	15.3	B	16.5	B	18.7	B	16.8	B
		TR	39.8	D	53.0	D	76.1	E	48.2	D
	SB	L	15.8	B	17.7	B	19.4	B	18.9	B
		TR	35.2	D	42.1	D	58.7	E	41.2	D
	Intersection		30.1	C	35.1	D	43.9	D	34.3	C
Woodside Ave (CR 99) at Sawgrass Dr/S Village Dr	EB	L	6.1	A	6.3	A	6.7	A	-	-
		T	4.8	A	4.8	A	5.1	A	-	-
		R	1.7	A	1.8	A	1.7	A	-	-
	WB	L	5.0	A	5.1	A	5.4	A	-	-
		T	4.7	A	4.8	A	5.1	A	-	-
		R	0.4	A	0.3	A	0.1	A	-	-
	NB	L	27.1	C	27.0	C	34.3	C	-	-
		TR	20.0	B	19.4	B	16.2	B	-	-
	SB	L	27.3	C	27.6	C	26.9	C	-	-
		T	24.7	C	24.7	C	24.4	C	-	-
		R	10.9	B	10.9	B	10.1	B	-	-
	Intersection		8.8	A	8.9	A	9.8	A	-	-
Farber Drive/Driveway Access at Station Road	EB	LT	35.8	D	36.3	D	36.3	D	-	-
		R	9.0	A	10.7	B	12.2	B	-	-
	WB	LTR	25.0	C	25.5	C	25.5	C	-	-
	NB	L	4.9	A	5.3	A	5.4	A	-	-
		T	6.1	A	6.5	A	7.0	A	-	-
		R	0.0	A	0.0	A	0.0	A	-	-
	SB	LTR	10.4	B	11.0	B	11.3	B	-	-
	Intersection		10.0	B	10.7	B	11.0	B	-	-
NY 27 North Service Road at Station Road	WB	LT	51.0	D	54.7	D	66.9	E	54.4	D
		R	37.7	D	38.8	D	44.5	D	39.3	D
	NB	L	8.0	A	10.9	B	12.0	B	13.6	B
		TR	5.7	A	6.0	A	6.5	A	7.1	A
	SB	L	11.0	B	11.7	B	12.0	B	12.7	B
		T	17.4	B	19.6	B	20.9	C	23.0	C
		R	2.9	A	3.0	A	3.0	A	3.2	A
	Intersection		14.6	B	16.3	B	18.6	B	18.2	B
NY 27 South Service Road at Station Road	EB	L	152.0	F	198.5	F	302.0	F	177.3	F
		TR	296.9	F	362.6	F	362.6	F	223.5	F
	WB	LTR	25.4	C	29.4	C	29.4	C	17.9	B
	NB	L	7.4	A	7.3	A	7.3	A	9.6	A
		TR	20.4	C	22.0	C	22.0	C	30.3	C
	SB	L	8.8	A	10.9	B	16.7	B	16.1	B
		TR	7.6	A	7.8	A	7.8	A	9.2	A
	Intersection		83.1	F	101.6	F	117.1	F	78.2	E

LOS SUMMARY - PM Peak Hour Analysis

NELSON & POPE

Crest Town Center 16212			LEVELS OF SERVICE AND DELAY					
			Existing		No Build		Build	
Unsignalized Intersections	**Approach**	**Movt.**	**Delay** Sec/Veh	**LOS**	**Delay** Sec/Veh	**LOS**	**Delay** Sec/Veh	**LOS**
NY 27 North Service Road at Westbound Exit 56	NB	LR	10.5	B	10.7	B	11.2	B
South Village Drive at Site Access	EB	LR	-	-	-	-	9.1	A
	NB	L	-	-	-	-	0.0	A
Station Road at Site Access	WB	L	-	-	-	-	45.3	E
		R	-	-	-	-	13.1	B
	SB	LT	-	-	-	-	1.8	A
NY27 North Service Rd at Site Exit	SB	R	-	-	-	-	10.0	A
NY27 North Service Rd at Site Access	EB	LT	-	-	-	-	2.5	A
	WB	TR	-	-	-	-	0.0	A
	SB	LR	-	-	-	-	8.5	A

LOS SUMMARY - Saturday Peak Hour Analysis

NELSON & POPE

Crest Town Center 16212			LEVELS OF SERVICE AND DELAY							
			Existing		No Build		Build		Build w/ Mitigation	
Signalized Intersections	**Approach**	**Movt.**	**Delay** Sec/Veh	**LOS**	**Delay** Sec/Veh	**LOS**	**Delay** Sec/Veh	**LOS**	**Delay** Sec/Veh	**LOS**
Sills Road (CR 101) at Station Road	EB	L	47.3	D	52.8	D	59.9	E	37.0	D
		T	21.6	C	22.4	C	22.4	C	26.0	C
		R	0.2	A	0.2	A	0.3	A	0.2	A
	WB	L	54.2	D	65.3	E	116.9	F	47.6	D
		T	20.1	C	22.1	C	22.5	C	24.2	C
		R	0.1	A	0.1	A	0.1	A	0.1	A
	NB	L	17.3	B	17.1	B	17.1	B	16.7	B
		T	21.1	C	20.6	C	20.7	C	21.0	C
		R	2.2	A	2.2	A	2.2	A	4.0	A
	SB	LTR	31.5	C	32.0	C	32.9	C	34.8	C
	Intersection		26.1	C	28.1	C	33.4	C	27.7	C
Woodside Ave (CR 99) at Station Road	EB	L	31.8	C	31.9	C	32.4	C	33.4	C
		T	29.0	C	29.1	C	29.3	C	30.4	C
		R	2.5	A	2.9	A	3.8	A	4.1	A
	WB	L	32.7	C	33.2	C	33.9	C	35.8	D
		T	22.7	C	22.8	C	22.7	C	26.3	C
		R	0.2	A	0.2	A	0.9	A	1.0	A
	NB	L	15.8	B	16.9	B	18.7	B	17.8	B
		TR	45.5	D	53.5	D	49.5	D	39.2	D
	SB	L	14.4	B	15.0	B	16.0	B	15.0	B
		TR	44.9	D	51.1	D	81.7	F	49.7	D
	Intersection		32.2	C	36.0	D	42.1	D	32.1	C
Woodside Ave (CR 99) at Sawgrass Dr/S Village Dr	EB	L	4.5	A	7.6	A	8.0	A	-	-
		T	3.6	A	6.0	A	6.3	A	-	-
		R	2.0	A	0.6	A	0.6	A	-	-
	WB	L	3.9	A	6.5	A	6.9	A	-	-
		T	3.6	A	6.0	A	6.3	A	-	-
		R	1.2	A	0.0	A	0.0	A	-	-
	NB	L	14.6	B	15.9	B	19.2	B	-	-
		TR	12.2	B	12.9	B	10.7	B	-	-
	SB	L	14.0	B	15.2	B	15.0	B	-	-
		T	14.2	B	15.4	B	15.2	B	-	-
		R	7.6	A	8.1	A	7.4	A	-	-
	Intersection		5.6	A	7.4	A	8.0	A	-	-
Farber Drive/Driveway Access at Station Road	EB	LT	40.1	D	40.9	D	40.9	D	-	-
		R	12.0	B	12.9	B	13.5	B	-	-
	WB	LTR	0.0	A	0.0	A	0.0	A	-	-
	NB	L	9.9	A	11.9	B	13.0	B	-	-
		T	7.1	A	7.4	A	7.8	A	-	-
		R	0.0	A	0.0	A	0.0	A	-	-
	SB	LTR	16.2	B	17.6	B	19.3	B	-	-
	Intersection		14.6	B	15.7	B	16.6	B	-	-
NY 27 North Service Road at Station Road	WB	LT	61.6	E	67.3	E	86.2	F	67.0	E
		R	52.6	D	55.1	E	64.5	E	54.5	D
	NB	L	6.1	A	7.1	A	7.3	A	8.0	A
		TR	5.2	A	5.5	A	5.8	A	6.3	A
	SB	L	9.0	A	10.2	B	10.8	B	11.8	B
		T	13.7	B	15.6	B	16.3	B	17.8	B
		R	2.2	A	2.4	A	2.5	A	2.7	A
	Intersection		14.5	B	16.0	B	18.9	B	17.4	B
NY 27 South Service Road at Station Road	EB	L	46.3	D	58.9	E	85.4	F	71.0	E
		TR	50.5	D	67.8	E	67.8	E	57.3	E
	WB	LTR	0.2	A	0.3	A	0.3	A	0.2	A
	NB	L	13.0	B	13.3	B	13.3	B	15.2	B
		TR	37.6	D	47.3	D	47.3	D	51.3	D
	SB	L	28.9	C	44.7	D	85.1	F	54.3	D
		TR	15.6	B	16.0	B	16.0	B	17.0	B
	Intersection		33.8	C	42.7	D	49.7	D	45.2	D

LOS SUMMARY - Saturday Peak Hour Analysis

NELSON & POPE

			LEVELS OF SERVICE AND DELAY					
Crest Town Center 16212			**Existing**		**No Build**		**Build**	
Unsignalized Intersections	**Approach**	**Movt.**	**Delay** Sec/Veh	**LOS**	**Delay** Sec/Veh	**LOS**	**Delay** Sec/Veh	**LOS**
NY 27 North Service Road at Westbound Exit 56	NB	LR	10.4	B	10.6	B	11.1	B
South Village Drive at Site Access	EB	LR	-	-	-	-	9.1	A
	NB	L	-	-	-	-	0.0	A
Station Road at Site Access	WB	L	-	-	-	-	41.5	E
		R	-	-	-	-	12.6	B
	SB	LT	-	-	-	-	1.3	A
NY27 North Service Rd at Site Exit	SB	R	-	-	-	-	10.0	A
NY27 North Service Rd at Site Access	EB	LT	-	-	-	-	3.7	A
	WB	TR	-	-	-	-	0.0	A
	SB	LR	-	-	-	-	8.5	A

Existing Capacity Analyses

Timings
1: Station Road & CR101 (Sills Road)

07/02/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	108	494	7	68	349	3	11	201	97	3	241
Future Volume (vph)	108	494	7	68	349	3	11	201	97	3	241
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	pm+ov	Perm	NA
Protected Phases	5	2		1	6			4	1		8
Permitted Phases			2			6	4		4	8	
Detector Phase	5	2	2	1	6	6	4	4	1	8	8
Switch Phase											
Minimum Initial (s)	3.0	20.0	20.0	3.0	20.0	20.0	6.0	6.0	3.0	6.0	6.0
Minimum Split (s)	8.2	27.0	27.0	8.2	27.0	27.0	13.0	13.0	8.2	13.0	13.0
Total Split (s)	13.0	32.0	32.0	13.0	32.0	32.0	25.0	25.0	13.0	25.0	25.0
Total Split (%)	18.6%	45.7%	45.7%	18.6%	45.7%	45.7%	35.7%	35.7%	18.6%	35.7%	35.7%
Yellow Time (s)	3.2	5.0	5.0	3.2	5.0	5.0	5.0	5.0	3.2	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	5.2	7.0	7.0	5.2	7.0	7.0	7.0	7.0	5.2		7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
Act Effct Green (s)	7.6	23.1	23.1	7.3	23.0	23.0	22.6	22.6	36.9		22.6
Actuated g/C Ratio	0.11	0.33	0.33	0.10	0.33	0.33	0.32	0.32	0.53		0.32
v/c Ratio	0.70	0.51	0.01	0.52	0.38	0.01	0.07	0.52	0.17		0.89
Control Delay	54.6	21.9	0.0	41.5	20.3	0.0	18.1	23.9	2.5		43.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	54.6	21.9	0.0	41.5	20.3	0.0	18.1	23.9	2.5		43.5
LOS	D	C	A	D	C	A	B	C	A		D
Approach Delay		27.4			23.5			17.0			43.5
Approach LOS		C			C			B			D

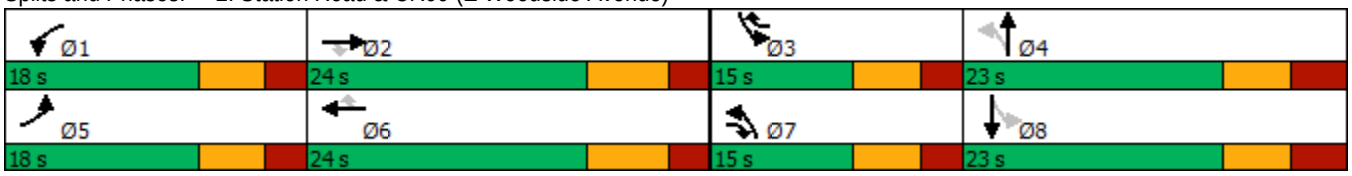
Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 13 (19%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 28.2	Intersection LOS: C
Intersection Capacity Utilization 61.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Station Road & CR101 (Sills Road)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	15	149	55	64	189	21	159	263	23	243
Future Volume (vph)	15	149	55	64	189	21	159	263	23	243
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases	5	2	7	1	6	3	7	4	3	8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	7	1	6	3	7	4	3	8
Switch Phase										
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	10.0	3.0	10.0
Minimum Split (s)	9.5	17.3	9.5	9.5	17.3	9.5	9.5	17.5	9.5	17.5
Total Split (s)	18.0	24.0	15.0	18.0	24.0	15.0	15.0	23.0	15.0	23.0
Total Split (%)	22.5%	30.0%	18.8%	22.5%	30.0%	18.8%	18.8%	28.8%	18.8%	28.8%
Yellow Time (s)	4.0	4.8	4.0	4.0	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.5	2.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.3	6.5	6.5	7.3	6.5	6.5	7.5	6.5	7.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	None	None	None	None	None
Act Effct Green (s)	6.5	10.7	26.6	8.6	20.2	34.0	29.0	23.2	23.1	15.7
Actuated g/C Ratio	0.09	0.16	0.39	0.13	0.29	0.50	0.42	0.34	0.34	0.23
v/c Ratio	0.13	0.38	0.12	0.40	0.24	0.03	0.56	0.76	0.10	0.89
Control Delay	32.5	29.9	0.4	35.2	19.8	0.1	21.7	37.4	13.7	56.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.5	29.9	0.4	35.2	19.8	0.1	21.7	37.4	13.7	56.3
LOS	C	C	A	D	B	A	C	D	B	E
Approach Delay		22.6			21.9			32.5		52.9
Approach LOS		C			C			C		D

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 68.6	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 33.2	Intersection LOS: C
Intersection Capacity Utilization 58.0%	ICU Level of Service B
Analysis Period (min) 15	

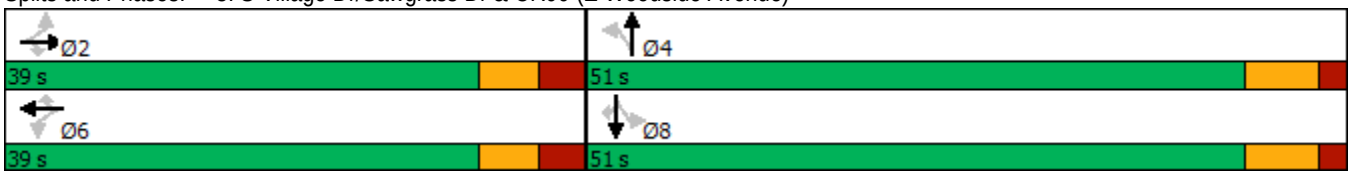
Splits and Phases: 2: Station Road & CR99 (E Woodside Avenue)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	178	103	14	4	108	14	12	20	8	6	180
Future Volume (vph)	178	103	14	4	108	14	12	20	8	6	180
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases		2			6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Detector Phase	2	2	2	6	6	6	4	4	8	8	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	25.3	25.3	25.3	25.3	25.3	25.3	25.0	25.0	25.0	25.0	25.0
Total Split (s)	39.0	39.0	39.0	39.0	39.0	39.0	51.0	51.0	51.0	51.0	51.0
Total Split (%)	43.3%	43.3%	43.3%	43.3%	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%	56.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0	7.0	7.0	7.0
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	Max	Max	Max	Max	Max	Max	None	None	None	None	None
Act Effct Green (s)	34.1	34.1	34.1	34.1	34.1	34.1	7.0	7.0	7.0	7.0	7.0
Actuated g/C Ratio	0.61	0.61	0.61	0.61	0.61	0.61	0.13	0.13	0.13	0.13	0.13
v/c Ratio	0.33	0.07	0.03	0.01	0.06	0.02	0.12	0.17	0.06	0.04	0.55
Control Delay	7.2	4.9	0.8	5.0	4.9	0.5	21.7	18.1	20.6	20.0	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	4.9	0.8	5.0	4.9	0.5	21.7	18.1	20.6	20.0	9.9
LOS	A	A	A	A	A	A	C	B	C	B	A
Approach Delay		6.1			4.4			19.2		10.7	
Approach LOS		A			A			B		B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 55.5	
Natural Cycle: 55	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.55	
Intersection Signal Delay: 8.0	Intersection LOS: A
Intersection Capacity Utilization 37.2%	ICU Level of Service A
Analysis Period (min) 15	

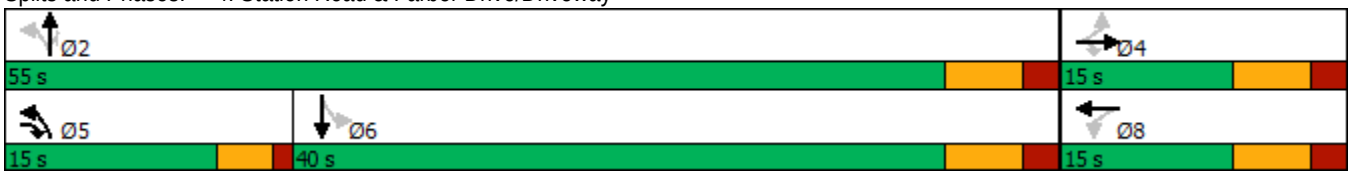
Splits and Phases: 3: S Village Dr/Sawgrass Dr & CR99 (E Woodside Avenue)



Lane Group	EBL	EBT	EBR	NBL	NBT	NBR	SBT	Ø8
Lane Configurations								
Traffic Volume (vph)	30	0	74	87	516	1	348	
Future Volume (vph)	30	0	74	87	516	1	348	
Turn Type	Perm	NA	pm+ov	pm+pt	NA	Perm	NA	
Protected Phases		4	5	5	2		6	8
Permitted Phases	4		4	2		2		
Detector Phase	4	4	5	5	2	2	6	
Switch Phase								
Minimum Initial (s)	6.0	6.0	3.0	3.0	10.0	10.0	10.0	6.0
Minimum Split (s)	12.0	12.0	9.0	9.0	16.0	16.0	16.0	12.0
Total Split (s)	15.0	15.0	15.0	15.0	55.0	55.0	40.0	15.0
Total Split (%)	21.4%	21.4%	21.4%	21.4%	78.6%	78.6%	57.1%	21%
Yellow Time (s)	4.0	4.0	3.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	1.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	4.0	4.0	6.0	6.0	6.0	
Lead/Lag			Lead	Lead			Lag	
Lead-Lag Optimize?			Yes	Yes			Yes	
Recall Mode	None	None	None	None	Max	Max	Max	None
Act Effct Green (s)		7.7	15.2	54.3	54.9	54.9	44.5	
Actuated g/C Ratio		0.12	0.23	0.81	0.82	0.82	0.67	
v/c Ratio		0.32	0.31	0.17	0.44	0.00	0.27	
Control Delay		32.8	5.7	3.1	4.9	0.0	7.1	
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		32.8	5.7	3.1	4.9	0.0	7.1	
LOS		C	A	A	A	A	A	
Approach Delay		13.6			4.6		7.1	
Approach LOS		B			A		A	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 66.8	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.44	
Intersection Signal Delay: 6.8	Intersection LOS: A
Intersection Capacity Utilization 58.5%	ICU Level of Service B
Analysis Period (min) 15	

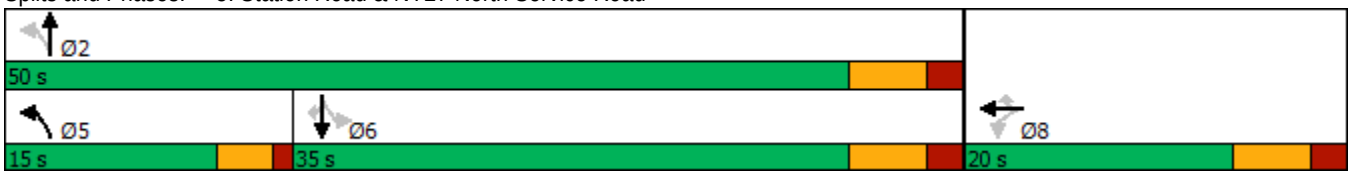
Splits and Phases: 4: Station Road & Farber Drive/Driveway



Lane Group	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	46	134	206	475	1	337	85
Future Volume (vph)	46	134	206	475	1	337	85
Turn Type	NA	Perm	pm+pt	NA	Perm	NA	Perm
Protected Phases	8		5	2		6	
Permitted Phases		8	2		6		6
Detector Phase	8	8	5	2	6	6	6
Switch Phase							
Minimum Initial (s)	6.0	6.0	3.0	10.0	10.0	10.0	10.0
Minimum Split (s)	12.0	12.0	7.0	16.0	16.0	16.0	16.0
Total Split (s)	20.0	20.0	15.0	50.0	35.0	35.0	35.0
Total Split (%)	28.6%	28.6%	21.4%	71.4%	50.0%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes	Yes
Recall Mode	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	12.7	12.7	46.0	44.0	30.9	30.9	30.9
Actuated g/C Ratio	0.18	0.18	0.67	0.64	0.45	0.45	0.45
v/c Ratio	0.75	0.51	0.42	0.50	0.00	0.58	0.15
Control Delay	43.9	32.2	7.1	8.8	12.0	18.8	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.9	32.2	7.1	8.8	12.0	18.8	3.6
LOS	D	C	A	A	B	B	A
Approach Delay	39.4			8.3		15.8	
Approach LOS	D			A		B	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 68.8	
Natural Cycle: 55	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 17.5	Intersection LOS: B
Intersection Capacity Utilization 60.7%	ICU Level of Service B
Analysis Period (min) 15	

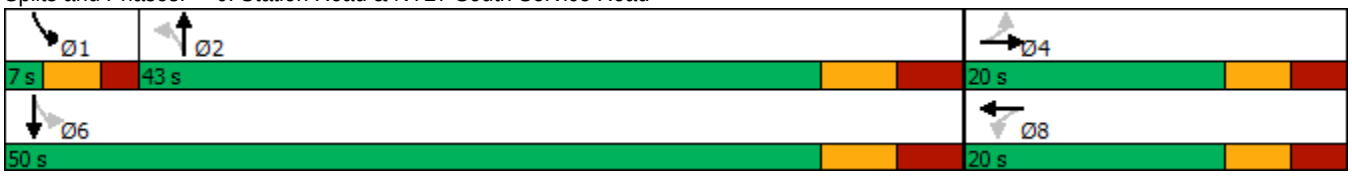
Splits and Phases: 5: Station Road & NY27 North Service Road



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	152	22	0	1	526	54	440
Future Volume (vph)	152	22	0	1	526	54	440
Turn Type	Perm	NA	NA	Perm	NA	pm+pt	NA
Protected Phases		4	8		2	1	6
Permitted Phases	4			2		6	
Detector Phase	4	4	8	2	2	1	6
Switch Phase							
Minimum Initial (s)	6.0	6.0	6.0	20.0	20.0	1.0	20.0
Minimum Split (s)	12.5	12.5	12.5	27.5	27.5	6.0	27.5
Total Split (s)	20.0	20.0	20.0	43.0	43.0	7.0	50.0
Total Split (%)	28.6%	28.6%	28.6%	61.4%	61.4%	10.0%	71.4%
Yellow Time (s)	3.5	3.5	3.5	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.5	3.5	2.0	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	7.5	7.5	5.0	7.5
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	Min	Min	None	Min
Act Effct Green (s)	13.9	13.9	13.9	28.6	28.6	34.9	32.4
Actuated g/C Ratio	0.23	0.23	0.23	0.47	0.47	0.58	0.53
v/c Ratio	0.72	1.14	0.06	0.00	0.81	0.25	0.67
Control Delay	42.7	122.6	0.2	9.0	24.0	7.1	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.7	122.6	0.2	9.0	24.0	7.1	13.9
LOS	D	F	A	A	C	A	B
Approach Delay		93.0	0.2		23.9		13.2
Approach LOS		F	A		C		B

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 60.6	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.14	
Intersection Signal Delay: 40.8	Intersection LOS: D
Intersection Capacity Utilization 72.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Station Road & NY27 South Service Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	15	0	0	36	325	0
Future Volume (Veh/h)	15	0	0	36	325	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.70	0.70	0.94	0.94	0.96	0.96
Hourly flow rate (vph)	21	0	0	38	339	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	559					
pX, platoon unblocked						
vC, conflicting volume			21		59	21
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			21		59	21
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			100		63	100
cM capacity (veh/h)			1608		928	1062

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	21	38	339
Volume Left	0	0	339
Volume Right	0	0	0
cSH	1700	1700	928
Volume to Capacity	0.01	0.02	0.37
Queue Length 95th (ft)	0	0	42
Control Delay (s)	0.0	0.0	11.1
Lane LOS			B
Approach Delay (s)	0.0	0.0	11.1
Approach LOS			B

Intersection Summary			
Average Delay	9.4		
Intersection Capacity Utilization	28.0%	ICU Level of Service	A
Analysis Period (min)	15		

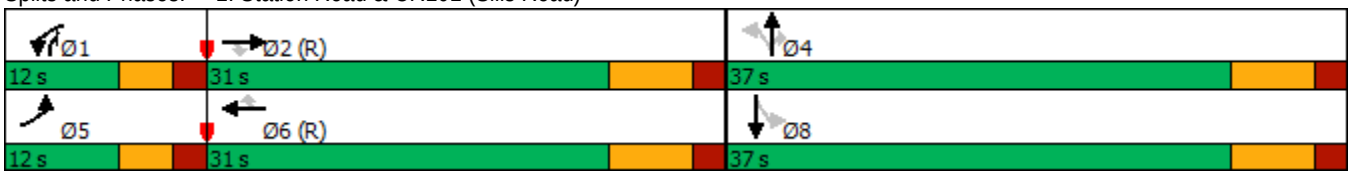
Timings
1: Station Road & CR101 (Sills Road)

07/02/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	161	584	6	116	516	2	10	217	106	7	278
Future Volume (vph)	161	584	6	116	516	2	10	217	106	7	278
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	pm+ov	Perm	NA
Protected Phases	5	2		1	6			4	1		8
Permitted Phases			2			6	4		4	8	
Detector Phase	5	2	2	1	6	6	4	4	1	8	8
Switch Phase											
Minimum Initial (s)	3.0	20.0	20.0	3.0	20.0	20.0	6.0	6.0	3.0	6.0	6.0
Minimum Split (s)	8.2	27.0	27.0	8.2	27.0	27.0	13.0	13.0	8.2	13.0	13.0
Total Split (s)	12.0	31.0	31.0	12.0	31.0	31.0	37.0	37.0	12.0	37.0	37.0
Total Split (%)	15.0%	38.8%	38.8%	15.0%	38.8%	38.8%	46.3%	46.3%	15.0%	46.3%	46.3%
Yellow Time (s)	3.2	5.0	5.0	3.2	5.0	5.0	5.0	5.0	3.2	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	5.2	7.0	7.0	5.2	7.0	7.0	7.0	7.0	5.2		7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
Act Effct Green (s)	12.6	25.9	25.9	9.7	23.0	23.0	25.2	25.2	41.9		25.2
Actuated g/C Ratio	0.16	0.32	0.32	0.12	0.29	0.29	0.32	0.32	0.52		0.32
v/c Ratio	0.61	0.54	0.01	0.61	0.55	0.00	0.06	0.41	0.15		0.84
Control Delay	46.8	25.4	0.0	49.5	26.9	0.0	17.7	22.8	4.1		35.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	46.8	25.4	0.0	49.5	26.9	0.0	17.7	22.8	4.1		35.8
LOS	D	C	A	D	C	A	B	C	A		D
Approach Delay		29.8			30.9			16.7			35.8
Approach LOS		C			C			B			D

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 13 (16%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 29.4	Intersection LOS: C
Intersection Capacity Utilization 73.2%	ICU Level of Service D
Analysis Period (min) 15	

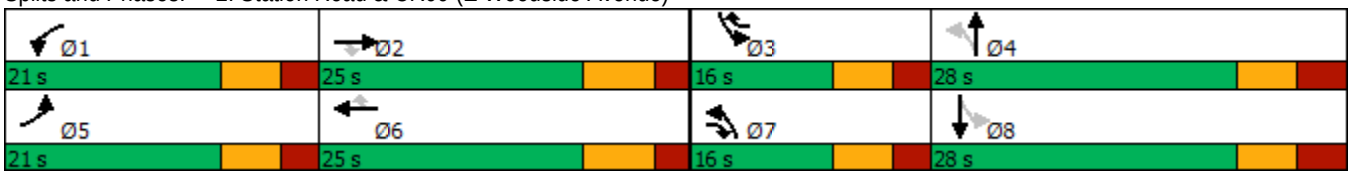
Splits and Phases: 1: Station Road & CR101 (Sills Road)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	33	216	89	106	174	63	71	313	88	306
Future Volume (vph)	33	216	89	106	174	63	71	313	88	306
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases	5	2	7	1	6	3	7	4	3	8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	7	1	6	3	7	4	3	8
Switch Phase										
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	10.0	3.0	10.0
Minimum Split (s)	15.5	17.3	9.5	9.5	17.3	9.5	9.5	17.5	9.5	17.5
Total Split (s)	21.0	25.0	16.0	21.0	25.0	16.0	16.0	28.0	16.0	28.0
Total Split (%)	23.3%	27.8%	17.8%	23.3%	27.8%	17.8%	17.8%	31.1%	17.8%	31.1%
Yellow Time (s)	4.0	4.8	4.0	4.0	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.5	2.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.3	6.5	6.5	7.3	6.5	6.5	7.5	6.5	7.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	None	None	None	None	None
Act Effct Green (s)	7.3	11.6	27.0	11.2	17.5	33.1	28.5	21.6	28.9	21.8
Actuated g/C Ratio	0.10	0.16	0.37	0.15	0.24	0.45	0.39	0.29	0.39	0.30
v/c Ratio	0.21	0.41	0.15	0.53	0.27	0.11	0.22	0.78	0.27	0.69
Control Delay	37.5	33.6	2.3	39.9	26.5	1.3	15.3	39.8	15.8	35.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	33.6	2.3	39.9	26.5	1.3	15.3	39.8	15.8	35.2
LOS	D	C	A	D	C	A	B	D	B	D
Approach Delay		25.7			26.0			36.0		31.3
Approach LOS		C			C			D		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 73.4	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 30.1	Intersection LOS: C
Intersection Capacity Utilization 63.8%	ICU Level of Service B
Analysis Period (min) 15	

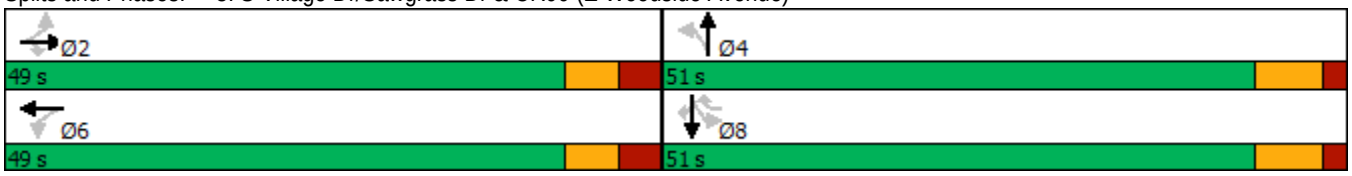
Splits and Phases: 2: Station Road & CR99 (E Woodside Avenue)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	152	167	30	7	107	10	14	9	23	12	213
Future Volume (vph)	152	167	30	7	107	10	14	9	23	12	213
Turn Type	Perm	NA	Perm	Perm	NA	custom	Perm	NA	Perm	NA	Perm
Protected Phases		2			6			4		8	
Permitted Phases	2		2	6		8	4		8		8
Detector Phase	2	2	2	6	6	8	4	4	8	8	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	25.3	25.3	25.3	25.3	25.3	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	49.0	49.0	49.0	49.0	49.0	51.0	51.0	51.0	51.0	51.0	51.0
Total Split (%)	49.0%	49.0%	49.0%	49.0%	49.0%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	3.3	3.3	3.3	3.3	3.3	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	Max	Max	Max	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	41.8	41.8	41.8	41.8	41.8	8.2	8.2	8.2	8.2	8.2	8.2
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.65	0.13	0.13	0.13	0.13	0.13	0.13
v/c Ratio	0.22	0.08	0.04	0.01	0.06	0.05	0.16	0.09	0.20	0.08	0.67
Control Delay	6.1	4.8	1.7	5.0	4.7	0.4	27.1	20.0	27.3	24.7	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.1	4.8	1.7	5.0	4.7	0.4	27.1	20.0	27.3	24.7	10.9
LOS	A	A	A	A	A	A	C	B	C	C	B
Approach Delay		5.1			4.4			23.6		13.1	
Approach LOS		A			A			C		B	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 64.3	
Natural Cycle: 55	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 8.8	Intersection LOS: A
Intersection Capacity Utilization 39.3%	ICU Level of Service A
Analysis Period (min) 15	

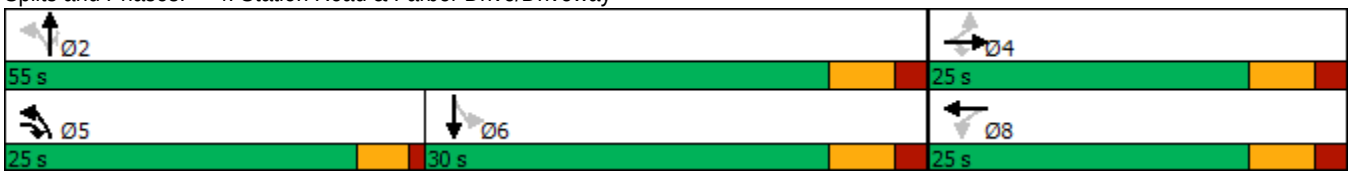
Splits and Phases: 3: S Village Dr/Sawgrass Dr & CR99 (E Woodside Avenue)



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Configurations								
Traffic Volume (vph)	84	0	188	1	0	147	426	427
Future Volume (vph)	84	0	188	1	0	147	426	427
Turn Type	Perm	NA	pm+ov	Perm	NA	pm+pt	NA	NA
Protected Phases		4	5		8	5	2	6
Permitted Phases	4		4	8		2		
Detector Phase	4	4	5	8	8	5	2	6
Switch Phase								
Minimum Initial (s)	6.0	6.0	3.0	6.0	6.0	3.0	10.0	10.0
Minimum Split (s)	12.0	12.0	9.0	12.0	12.0	9.0	16.0	16.0
Total Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	55.0	30.0
Total Split (%)	31.3%	31.3%	31.3%	31.3%	31.3%	31.3%	68.8%	37.5%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	4.0		6.0	4.0	6.0	6.0
Lead/Lag			Lead			Lead		Lag
Lead-Lag Optimize?			Yes			Yes		Yes
Recall Mode	None	None	None	None	None	None	Max	Max
Act Effct Green (s)		10.3	21.2		10.3	51.7	51.2	37.8
Actuated g/C Ratio		0.15	0.31		0.15	0.75	0.74	0.55
v/c Ratio		0.48	0.39		0.02	0.27	0.37	0.31
Control Delay		35.9	9.0		25.0	4.9	6.1	10.4
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		35.9	9.0		25.0	4.9	6.1	10.4
LOS		D	A		C	A	A	B
Approach Delay		17.3			25.0		5.8	10.4
Approach LOS		B			C		A	B

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 69.1	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.48	
Intersection Signal Delay: 10.0	Intersection LOS: A
Intersection Capacity Utilization 56.9%	ICU Level of Service B
Analysis Period (min) 15	

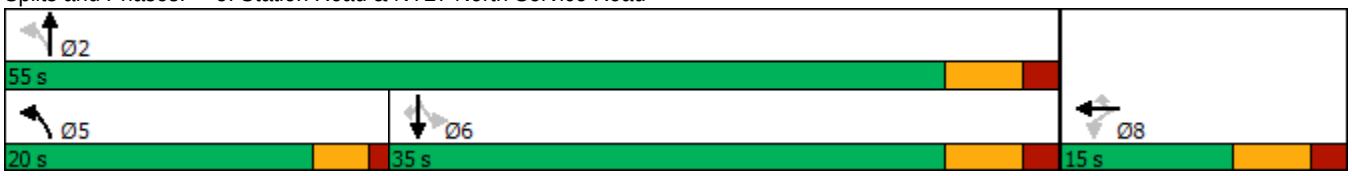
Splits and Phases: 4: Station Road & Farber Drive/Driveway



Lane Group	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	9	83	325	473	2	456	156
Future Volume (vph)	9	83	325	473	2	456	156
Turn Type	NA	Perm	pm+pt	NA	Perm	NA	Perm
Protected Phases	8		5	2		6	
Permitted Phases		8	2		6		6
Detector Phase	8	8	5	2	6	6	6
Switch Phase							
Minimum Initial (s)	6.0	6.0	3.0	10.0	10.0	10.0	10.0
Minimum Split (s)	12.0	12.0	7.0	16.0	16.0	16.0	16.0
Total Split (s)	15.0	15.0	20.0	55.0	35.0	35.0	35.0
Total Split (%)	21.4%	21.4%	28.6%	78.6%	50.0%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes	Yes
Recall Mode	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	8.7	8.7	51.0	49.0	34.1	34.1	34.1
Actuated g/C Ratio	0.12	0.12	0.73	0.70	0.49	0.49	0.49
v/c Ratio	0.73	0.48	0.61	0.44	0.00	0.60	0.22
Control Delay	51.0	37.7	8.0	5.7	11.0	17.4	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.0	37.7	8.0	5.7	11.0	17.4	2.9
LOS	D	D	A	A	B	B	A
Approach Delay	46.2			6.6		13.7	
Approach LOS	D			A		B	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 69.7	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 14.6	Intersection LOS: B
Intersection Capacity Utilization 63.4%	ICU Level of Service B
Analysis Period (min) 15	

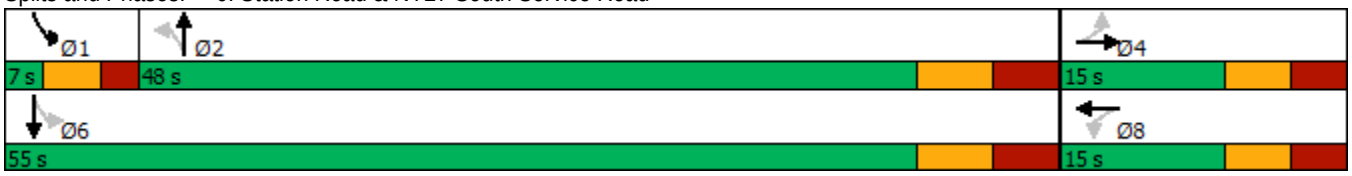
Splits and Phases: 5: Station Road & NY27 North Service Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	224	83	4	1	25	594	105	441
Future Volume (vph)	224	83	4	1	25	594	105	441
Turn Type	Perm	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases		4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	1	6
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	20.0	20.0	1.0	20.0
Minimum Split (s)	12.5	12.5	12.5	12.5	27.5	27.5	6.0	27.5
Total Split (s)	15.0	15.0	15.0	15.0	48.0	48.0	7.0	55.0
Total Split (%)	21.4%	21.4%	21.4%	21.4%	68.6%	68.6%	10.0%	78.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.5	3.5	2.0	3.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	7.5	7.5	5.0	7.5
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)	8.8	8.8		8.8	29.9	29.9	37.8	35.2
Actuated g/C Ratio	0.15	0.15		0.15	0.51	0.51	0.65	0.60
v/c Ratio	1.18	1.56		0.34	0.07	0.82	0.44	0.50
Control Delay	152.0	296.9		25.4	7.4	20.4	8.8	7.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	152.0	296.9		25.4	7.4	20.4	8.8	7.6
LOS	F	F		C	A	C	A	A
Approach Delay		240.6		25.4		19.9		7.8
Approach LOS		F		C		B		A

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 58.4	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.56	
Intersection Signal Delay: 83.1	Intersection LOS: F
Intersection Capacity Utilization 81.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Station Road & NY27 South Service Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	46	0	0	36	205	6
Future Volume (Veh/h)	46	0	0	36	205	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.64	0.64	0.91	0.91
Hourly flow rate (vph)	52	0	0	56	225	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	559					
pX, platoon unblocked						
vC, conflicting volume			52		108	52
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			52		108	52
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		75	99
cM capacity (veh/h)			1567		887	1021

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	52	56	232
Volume Left	0	0	225
Volume Right	0	0	7
cSH	1700	1700	890
Volume to Capacity	0.03	0.03	0.26
Queue Length 95th (ft)	0	0	26
Control Delay (s)	0.0	0.0	10.5
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.5
Approach LOS			B

Intersection Summary			
Average Delay	7.1		
Intersection Capacity Utilization	21.7%	ICU Level of Service	A
Analysis Period (min)	15		

Timings
1: Station Road & CR101 (Sills Road)

07/02/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	120	422	23	137	400	8	14	195	108	3	262
Future Volume (vph)	120	422	23	137	400	8	14	195	108	3	262
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	pm+ov	Perm	NA
Protected Phases	5	2		1	6			4	1		8
Permitted Phases			2			6	4		4	8	
Detector Phase	5	2	2	1	6	6	4	4	1	8	8
Switch Phase											
Minimum Initial (s)	3.0	20.0	20.0	3.0	20.0	20.0	5.0	5.0	3.0	6.0	6.0
Minimum Split (s)	8.2	27.0	27.0	8.2	27.0	27.0	12.0	12.0	8.2	13.0	13.0
Total Split (s)	12.0	31.0	31.0	12.0	31.0	31.0	27.0	27.0	12.0	27.0	27.0
Total Split (%)	17.1%	44.3%	44.3%	17.1%	44.3%	44.3%	38.6%	38.6%	17.1%	38.6%	38.6%
Yellow Time (s)	3.2	5.0	5.0	3.2	5.0	5.0	5.0	5.0	3.2	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	5.2	7.0	7.0	5.2	7.0	7.0	7.0	7.0	5.2		7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
Act Effct Green (s)	7.7	20.7	20.7	9.4	24.8	24.8	20.7	20.7	37.1		20.7
Actuated g/C Ratio	0.11	0.30	0.30	0.13	0.35	0.35	0.30	0.30	0.53		0.30
v/c Ratio	0.63	0.42	0.05	0.73	0.39	0.02	0.08	0.39	0.14		0.80
Control Delay	47.3	21.6	0.2	54.2	20.1	0.1	17.3	21.1	2.2		31.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	47.3	21.6	0.2	54.2	20.1	0.1	17.3	21.1	2.2		31.5
LOS	D	C	A	D	C	A	B	C	A		C
Approach Delay		26.2			28.4			14.6			31.5
Approach LOS		C			C			B			C

Intersection Summary

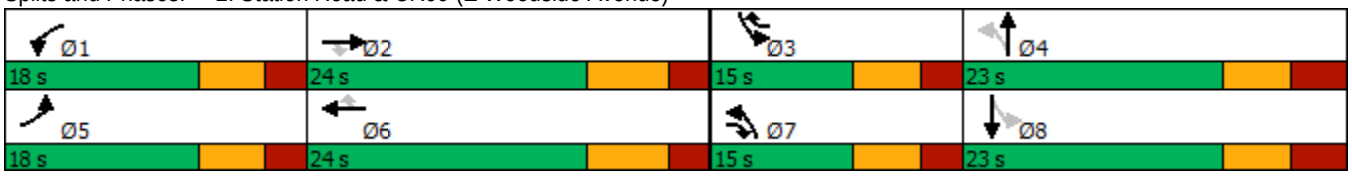
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 13 (19%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 26.1 — Intersection LOS: C
Intersection Capacity Utilization 65.4% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Station Road & CR101 (Sills Road)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	31	131	101	63	108	53	94	307	73	336
Future Volume (vph)	31	131	101	63	108	53	94	307	73	336
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases	5	2	7	1	6	3	7	4	3	8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	7	1	6	3	7	4	3	8
Switch Phase										
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	10.0	3.0	10.0
Minimum Split (s)	9.5	17.3	9.5	9.5	17.3	9.5	9.5	17.5	9.5	17.5
Total Split (s)	18.0	24.0	15.0	18.0	24.0	15.0	15.0	23.0	15.0	23.0
Total Split (%)	22.5%	30.0%	18.8%	22.5%	30.0%	18.8%	18.8%	28.8%	18.8%	28.8%
Yellow Time (s)	4.0	4.8	4.0	4.0	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.5	2.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.3	6.5	6.5	7.3	6.5	6.5	7.5	6.5	7.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	None	None	None	None	None
Act Effct Green (s)	7.1	10.6	26.2	8.5	16.9	31.8	23.7	16.8	22.8	16.3
Actuated g/C Ratio	0.11	0.16	0.40	0.13	0.26	0.49	0.37	0.26	0.35	0.25
v/c Ratio	0.19	0.26	0.17	0.34	0.14	0.08	0.34	0.85	0.24	0.83
Control Delay	31.8	29.0	2.5	32.7	22.7	0.2	15.8	45.5	14.4	44.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	29.0	2.5	32.7	22.7	0.2	15.8	45.5	14.4	44.9
LOS	C	C	A	C	C	A	B	D	B	D
Approach Delay		19.1			20.2			39.3		40.0
Approach LOS		B			C			D		D

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 64.7	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 32.2	Intersection LOS: C
Intersection Capacity Utilization 60.4%	ICU Level of Service B
Analysis Period (min) 15	

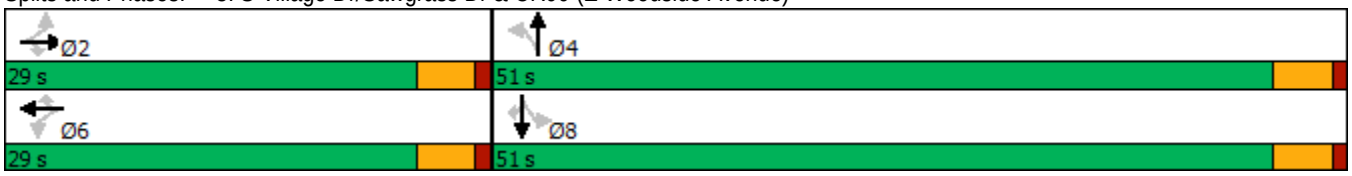
Splits and Phases: 2: Station Road & CR99 (E Woodside Avenue)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	122	148	15	37	132	6	8	8	4	11	168
Future Volume (vph)	122	148	15	37	132	6	8	8	4	11	168
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases		2			6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Detector Phase	2	2	2	6	6	6	4	4	8	8	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	29.0	29.0	29.0	29.0	29.0	29.0	51.0	51.0	51.0	51.0	51.0
Total Split (%)	36.3%	36.3%	36.3%	36.3%	36.3%	36.3%	63.8%	63.8%	63.8%	63.8%	63.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	Max	Max	Max	Max	Max	Max	None	None	None	None	None
Act Effct Green (s)	27.0	27.0	27.0	27.0	27.0	27.0	6.7	6.7	6.7	6.7	6.7
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.63	0.63	0.16	0.16	0.16	0.16	0.16
v/c Ratio	0.17	0.07	0.02	0.06	0.07	0.01	0.07	0.07	0.03	0.05	0.52
Control Delay	4.5	3.6	2.0	3.9	3.6	1.2	14.6	12.2	14.0	14.2	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.5	3.6	2.0	3.9	3.6	1.2	14.6	12.2	14.0	14.2	7.6
LOS	A	A	A	A	A	A	B	B	B	B	A
Approach Delay		3.9			3.6			13.2		8.2	
Approach LOS		A			A			B		A	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 42.8	
Natural Cycle: 45	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 5.6	Intersection LOS: A
Intersection Capacity Utilization 30.0%	ICU Level of Service A
Analysis Period (min) 15	

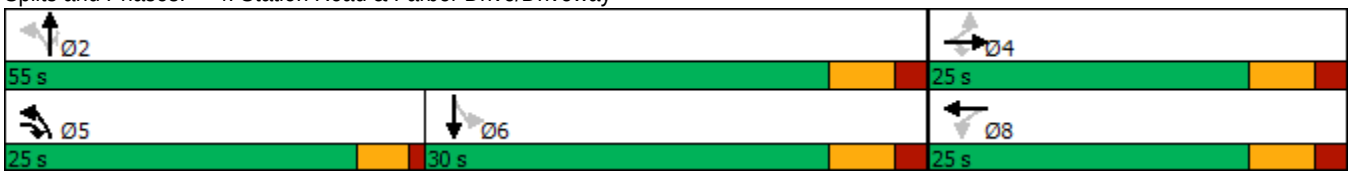
Splits and Phases: 3: S Village Dr/Sawgrass Dr & CR99 (E Woodside Avenue)



Lane Group	EBL	EBT	EBR	NBL	NBT	SBT	Ø8
Lane Configurations							
Traffic Volume (vph)	145	0	352	278	330	386	
Future Volume (vph)	145	0	352	278	330	386	
Turn Type	Perm	NA	pm+ov	pm+pt	NA	NA	
Protected Phases		4	5	5	2	6	8
Permitted Phases	4		4	2			
Detector Phase	4	4	5	5	2	6	
Switch Phase							
Minimum Initial (s)	6.0	6.0	3.0	3.0	10.0	10.0	6.0
Minimum Split (s)	12.0	12.0	9.0	9.0	16.0	16.0	12.0
Total Split (s)	25.0	25.0	25.0	25.0	55.0	30.0	25.0
Total Split (%)	31.3%	31.3%	31.3%	31.3%	68.8%	37.5%	31%
Yellow Time (s)	4.0	4.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	4.0	4.0	6.0	6.0	
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Recall Mode	None	None	None	None	Max	Max	None
Act Effct Green (s)		13.6	32.3	51.1	49.1	32.5	
Actuated g/C Ratio		0.18	0.43	0.68	0.66	0.43	
v/c Ratio		0.65	0.54	0.59	0.32	0.47	
Control Delay		40.1	12.0	9.9	7.1	16.2	
Queue Delay		0.0	0.0	0.0	0.0	0.0	
Total Delay		40.1	12.0	9.9	7.1	16.2	
LOS		D	B	A	A	B	
Approach Delay		20.2			8.4	16.2	
Approach LOS		C			A	B	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 74.8	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 14.6	Intersection LOS: B
Intersection Capacity Utilization 56.5%	ICU Level of Service B
Analysis Period (min) 15	

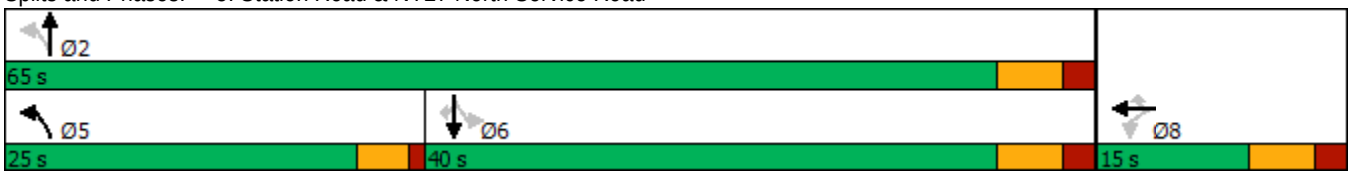
Splits and Phases: 4: Station Road & Farber Drive/Driveway



Lane Group	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	19	101	329	566	3	504	188
Future Volume (vph)	19	101	329	566	3	504	188
Turn Type	NA	Perm	pm+pt	NA	Perm	NA	Perm
Protected Phases	8		5	2		6	
Permitted Phases		8	2		6		6
Detector Phase	8	8	5	2	6	6	6
Switch Phase							
Minimum Initial (s)	6.0	6.0	3.0	10.0	10.0	10.0	10.0
Minimum Split (s)	12.0	12.0	7.0	16.0	16.0	16.0	16.0
Total Split (s)	15.0	15.0	25.0	65.0	40.0	40.0	40.0
Total Split (%)	18.8%	18.8%	31.3%	81.3%	50.0%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes	Yes
Recall Mode	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	8.8	8.8	61.0	59.0	44.7	44.7	44.7
Actuated g/C Ratio	0.11	0.11	0.76	0.74	0.56	0.56	0.56
v/c Ratio	0.77	0.65	0.54	0.44	0.01	0.51	0.20
Control Delay	61.6	52.6	6.1	5.2	9.0	13.7	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.6	52.6	6.1	5.2	9.0	13.7	2.2
LOS	E	D	A	A	A	B	A
Approach Delay	57.7			5.5		10.5	
Approach LOS	E			A		B	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 79.8	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 14.5	Intersection LOS: B
Intersection Capacity Utilization 65.5%	ICU Level of Service C
Analysis Period (min) 15	

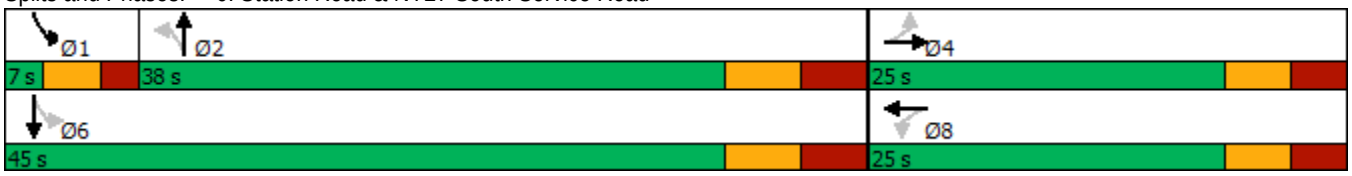
Splits and Phases: 5: Station Road & NY27 North Service Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	283	120	2	0	32	606	97	432
Future Volume (vph)	283	120	2	0	32	606	97	432
Turn Type	Perm	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases		4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	1	6
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	20.0	20.0	1.0	20.0
Minimum Split (s)	12.5	12.5	12.5	12.5	27.5	27.5	6.0	27.5
Total Split (s)	25.0	25.0	25.0	25.0	38.0	38.0	7.0	45.0
Total Split (%)	35.7%	35.7%	35.7%	35.7%	54.3%	54.3%	10.0%	64.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.5	3.5	2.0	3.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	7.5	7.5	5.0	7.5
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)	18.1	18.1		18.1	28.5	28.5	36.3	33.8
Actuated g/C Ratio	0.27	0.27		0.27	0.43	0.43	0.55	0.51
v/c Ratio	0.84	0.90		0.07	0.11	0.92	0.65	0.67
Control Delay	46.3	50.5		0.2	13.0	37.6	28.9	15.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	46.3	50.5		0.2	13.0	37.6	28.9	15.6
LOS	D	D		A	B	D	C	B
Approach Delay		48.6		0.2		36.5		17.7
Approach LOS		D		A		D		B

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 66.1	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 33.8	Intersection LOS: C
Intersection Capacity Utilization 85.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Station Road & NY27 South Service Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	17	0	0	33	237	3
Future Volume (Veh/h)	17	0	0	33	237	3
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.81	0.81	0.88	0.88
Hourly flow rate (vph)	27	0	0	41	269	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	559					
pX, platoon unblocked						
vC, conflicting volume			27		68	27
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			27		68	27
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		71	100
cM capacity (veh/h)			1600		939	1054

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	27	41	272
Volume Left	0	0	269
Volume Right	0	0	3
cSH	1700	1700	941
Volume to Capacity	0.02	0.02	0.29
Queue Length 95th (ft)	0	0	30
Control Delay (s)	0.0	0.0	10.4
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.4
Approach LOS			B

Intersection Summary			
Average Delay	8.3		
Intersection Capacity Utilization	23.3%	ICU Level of Service	A
Analysis Period (min)	15		

No Build Capacity Analyses

Timings
1: Station Road & CR101 (Sills Road)

07/02/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	115	525	8	73	371	4	12	214	104	4	256
Future Volume (vph)	115	525	8	73	371	4	12	214	104	4	256
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	pm+ov	Perm	NA
Protected Phases	5	2		1	6			4	1		8
Permitted Phases			2			6	4		4	8	
Detector Phase	5	2	2	1	6	6	4	4	1	8	8
Switch Phase											
Minimum Initial (s)	3.0	20.0	20.0	3.0	20.0	20.0	6.0	6.0	3.0	6.0	6.0
Minimum Split (s)	8.2	27.0	27.0	8.2	27.0	27.0	13.0	13.0	8.2	13.0	13.0
Total Split (s)	13.0	32.0	32.0	13.0	32.0	32.0	25.0	25.0	13.0	25.0	25.0
Total Split (%)	18.6%	45.7%	45.7%	18.6%	45.7%	45.7%	35.7%	35.7%	18.6%	35.7%	35.7%
Yellow Time (s)	3.2	5.0	5.0	3.2	5.0	5.0	5.0	5.0	3.2	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	5.2	7.0	7.0	5.2	7.0	7.0	7.0	7.0	5.2		7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
Act Effct Green (s)	7.7	23.3	23.3	7.4	20.8	20.8	22.3	22.3	36.6		22.3
Actuated g/C Ratio	0.11	0.33	0.33	0.11	0.30	0.30	0.32	0.32	0.52		0.32
v/c Ratio	0.74	0.53	0.02	0.55	0.45	0.01	0.08	0.56	0.18		0.96
Control Delay	57.8	21.9	0.0	43.2	21.5	0.0	19.2	25.4	2.9		56.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	57.8	21.9	0.0	43.2	21.5	0.0	19.2	25.4	2.9		56.2
LOS	E	C	A	D	C	A	B	C	A		E
Approach Delay		28.0			24.8			18.1			56.2
Approach LOS		C			C			B			E

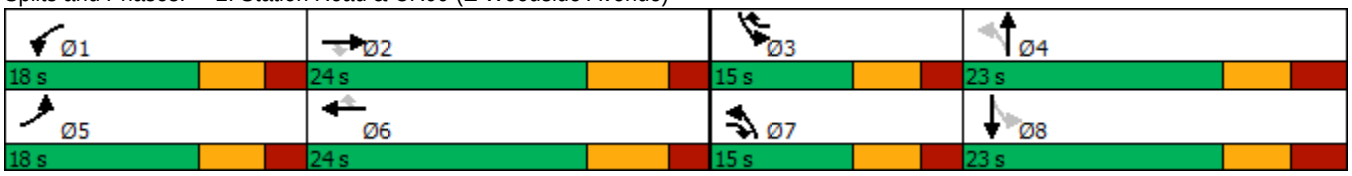
Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 13 (19%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 31.8	Intersection LOS: C
Intersection Capacity Utilization 64.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Station Road & CR101 (Sills Road)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	16	159	59	68	201	23	169	280	25	259
Future Volume (vph)	16	159	59	68	201	23	169	280	25	259
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases	5	2	7	1	6	3	7	4	3	8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	7	1	6	3	7	4	3	8
Switch Phase										
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	10.0	3.0	10.0
Minimum Split (s)	9.5	17.3	9.5	9.5	17.3	9.5	9.5	17.5	9.5	17.5
Total Split (s)	18.0	24.0	15.0	18.0	24.0	15.0	15.0	23.0	15.0	23.0
Total Split (%)	22.5%	30.0%	18.8%	22.5%	30.0%	18.8%	18.8%	28.8%	18.8%	28.8%
Yellow Time (s)	4.0	4.8	4.0	4.0	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.5	2.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.3	6.5	6.5	7.3	6.5	6.5	7.5	6.5	7.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	None	None	None	None	None
Act Effct Green (s)	6.6	10.8	26.8	8.7	17.9	31.8	29.1	23.3	23.2	15.7
Actuated g/C Ratio	0.10	0.16	0.39	0.13	0.26	0.46	0.42	0.34	0.34	0.23
v/c Ratio	0.14	0.41	0.13	0.42	0.29	0.04	0.61	0.82	0.12	0.96
Control Delay	32.8	30.1	0.7	35.8	22.9	0.1	24.7	41.6	14.0	69.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.8	30.1	0.7	35.8	22.9	0.1	24.7	41.6	14.0	69.1
LOS	C	C	A	D	C	A	C	D	B	E
Approach Delay		22.9			24.1			36.4		64.6
Approach LOS		C			C			D		E

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 69	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 37.8	Intersection LOS: D
Intersection Capacity Utilization 59.5%	ICU Level of Service B
Analysis Period (min) 15	

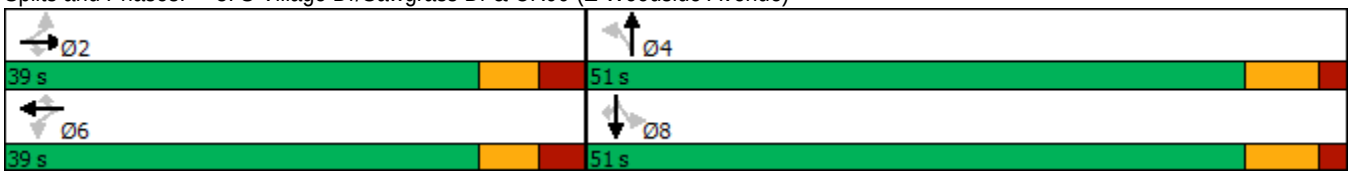
Splits and Phases: 2: Station Road & CR99 (E Woodside Avenue)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	190	110	15	5	115	15	13	22	9	7	192
Future Volume (vph)	190	110	15	5	115	15	13	22	9	7	192
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases		2			6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Detector Phase	2	2	2	6	6	6	4	4	8	8	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	25.3	25.3	25.3	25.3	25.3	25.3	25.0	25.0	25.0	25.0	25.0
Total Split (s)	39.0	39.0	39.0	39.0	39.0	39.0	51.0	51.0	51.0	51.0	51.0
Total Split (%)	43.3%	43.3%	43.3%	43.3%	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%	56.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0	7.0	7.0	7.0
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	Max	Max	Max	Max	Max	Max	None	None	None	None	None
Act Effct Green (s)	33.6	33.6	33.6	33.6	33.6	33.6	7.1	7.1	7.1	7.1	7.1
Actuated g/C Ratio	0.61	0.61	0.61	0.61	0.61	0.61	0.13	0.13	0.13	0.13	0.13
v/c Ratio	0.35	0.08	0.03	0.01	0.06	0.02	0.12	0.19	0.07	0.04	0.57
Control Delay	7.6	5.0	0.9	5.2	4.9	0.5	21.7	18.0	20.7	20.0	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.6	5.0	0.9	5.2	4.9	0.5	21.7	18.0	20.7	20.0	9.9
LOS	A	A	A	A	A	A	C	B	C	B	A
Approach Delay		6.3			4.4			19.1		10.7	
Approach LOS		A			A			B		B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 55	
Natural Cycle: 55	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.57	
Intersection Signal Delay: 8.1	Intersection LOS: A
Intersection Capacity Utilization 38.0%	ICU Level of Service A
Analysis Period (min) 15	

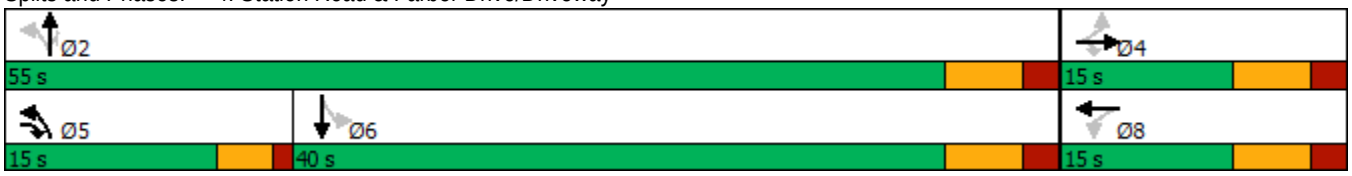
Splits and Phases: 3: S Village Dr/Sawgrass Dr & CR99 (E Woodside Avenue)



Lane Group	EBL	EBT	EBR	NBL	NBT	NBR	SBT	Ø8
Lane Configurations								
Traffic Volume (vph)	32	0	79	93	548	2	370	
Future Volume (vph)	32	0	79	93	548	2	370	
Turn Type	Perm	NA	pm+ov	pm+pt	NA	Perm	NA	
Protected Phases		4	5	5	2		6	8
Permitted Phases	4		4	2		2		
Detector Phase	4	4	5	5	2	2	6	
Switch Phase								
Minimum Initial (s)	6.0	6.0	3.0	3.0	10.0	10.0	10.0	6.0
Minimum Split (s)	12.0	12.0	9.0	9.0	16.0	16.0	16.0	12.0
Total Split (s)	15.0	15.0	15.0	15.0	55.0	55.0	40.0	15.0
Total Split (%)	21.4%	21.4%	21.4%	21.4%	78.6%	78.6%	57.1%	21%
Yellow Time (s)	4.0	4.0	3.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	1.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	4.0	4.0	6.0	6.0	6.0	
Lead/Lag			Lead	Lead			Lag	
Lead-Lag Optimize?			Yes	Yes			Yes	
Recall Mode	None	None	None	None	Max	Max	Max	None
Act Effct Green (s)		7.7	15.2	53.9	54.6	54.6	41.1	
Actuated g/C Ratio		0.12	0.23	0.81	0.82	0.82	0.62	
v/c Ratio		0.33	0.32	0.18	0.46	0.00	0.31	
Control Delay		33.1	5.6	3.2	5.2	0.0	7.7	
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		33.1	5.6	3.2	5.2	0.0	7.7	
LOS		C	A	A	A	A	A	
Approach Delay		13.5			4.9		7.7	
Approach LOS		B			A		A	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 66.4	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay: 7.1	Intersection LOS: A
Intersection Capacity Utilization 61.0%	ICU Level of Service B
Analysis Period (min) 15	

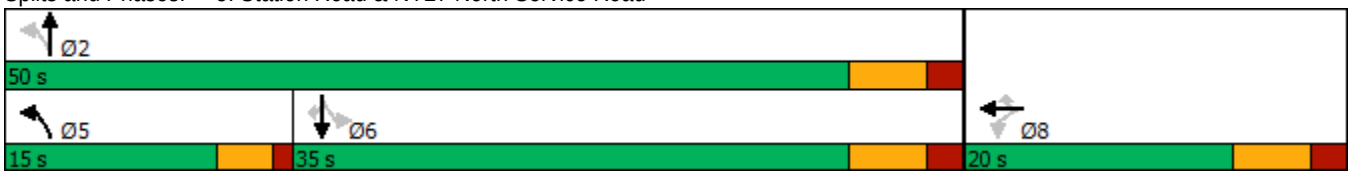
Splits and Phases: 4: Station Road & Farber Drive/Driveway



Lane Group	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	49	143	219	505	2	358	91
Future Volume (vph)	49	143	219	505	2	358	91
Turn Type	NA	Perm	pm+pt	NA	Perm	NA	Perm
Protected Phases	8		5	2		6	
Permitted Phases		8	2		6		6
Detector Phase	8	8	5	2	6	6	6
Switch Phase							
Minimum Initial (s)	6.0	6.0	3.0	10.0	10.0	10.0	10.0
Minimum Split (s)	12.0	12.0	7.0	16.0	16.0	16.0	16.0
Total Split (s)	20.0	20.0	15.0	50.0	35.0	35.0	35.0
Total Split (%)	28.6%	28.6%	21.4%	71.4%	50.0%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes	Yes
Recall Mode	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	13.1	13.1	46.0	44.0	30.7	30.7	30.7
Actuated g/C Ratio	0.19	0.19	0.67	0.64	0.44	0.44	0.44
v/c Ratio	0.79	0.53	0.47	0.53	0.01	0.62	0.16
Control Delay	46.7	32.9	7.9	9.3	12.0	20.2	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.7	32.9	7.9	9.3	12.0	20.2	3.5
LOS	D	C	A	A	B	C	A
Approach Delay	41.3			8.9		16.8	
Approach LOS	D			A		B	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 69.1	
Natural Cycle: 55	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 18.6	Intersection LOS: B
Intersection Capacity Utilization 63.1%	ICU Level of Service B
Analysis Period (min) 15	

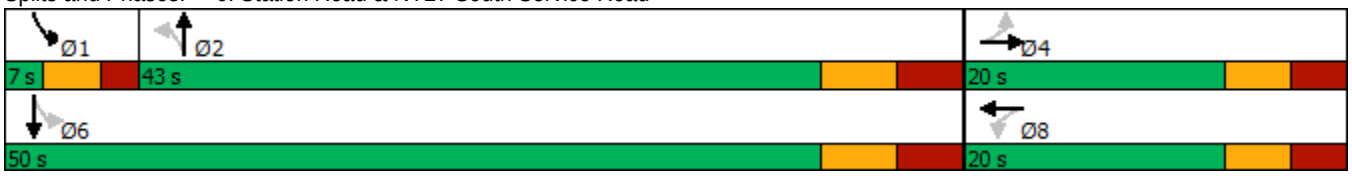
Splits and Phases: 5: Station Road & NY27 North Service Road



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	162	24	0	2	559	58	468
Future Volume (vph)	162	24	0	2	559	58	468
Turn Type	Perm	NA	NA	Perm	NA	pm+pt	NA
Protected Phases		4	8		2	1	6
Permitted Phases	4			2		6	
Detector Phase	4	4	8	2	2	1	6
Switch Phase							
Minimum Initial (s)	6.0	6.0	6.0	20.0	20.0	1.0	20.0
Minimum Split (s)	12.5	12.5	12.5	27.5	27.5	6.0	27.5
Total Split (s)	20.0	20.0	20.0	43.0	43.0	7.0	50.0
Total Split (%)	28.6%	28.6%	28.6%	61.4%	61.4%	10.0%	71.4%
Yellow Time (s)	3.5	3.5	3.5	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.5	3.5	2.0	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	7.5	7.5	5.0	7.5
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	Min	Min	None	Min
Act Effct Green (s)	13.8	13.8	13.8	30.1	30.1	36.5	33.9
Actuated g/C Ratio	0.22	0.22	0.22	0.48	0.48	0.59	0.55
v/c Ratio	0.79	1.24	0.07	0.01	0.84	0.28	0.70
Control Delay	49.8	163.3	0.2	8.5	26.1	7.7	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.8	163.3	0.2	8.5	26.1	7.7	14.6
LOS	D	F	A	A	C	A	B
Approach Delay		121.2	0.3		26.1		13.9
Approach LOS		F	A		C		B

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 62.1	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.24	
Intersection Signal Delay: 50.3	Intersection LOS: D
Intersection Capacity Utilization 76.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Station Road & NY27 South Service Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	15	0	0	37	335	0
Future Volume (Veh/h)	15	0	0	37	335	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.70	0.70	0.94	0.94	0.96	0.96
Hourly flow rate (vph)	21	0	0	39	349	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	559					
pX, platoon unblocked						
vC, conflicting volume			21		60	21
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			21		60	21
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			100		62	100
cM capacity (veh/h)			1608		927	1062

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	21	39	349
Volume Left	0	0	349
Volume Right	0	0	0
cSH	1700	1700	927
Volume to Capacity	0.01	0.02	0.38
Queue Length 95th (ft)	0	0	44
Control Delay (s)	0.0	0.0	11.2
Lane LOS			B
Approach Delay (s)	0.0	0.0	11.2
Approach LOS			B

Intersection Summary			
Average Delay	9.6		
Intersection Capacity Utilization	28.6%	ICU Level of Service	A
Analysis Period (min)	15		

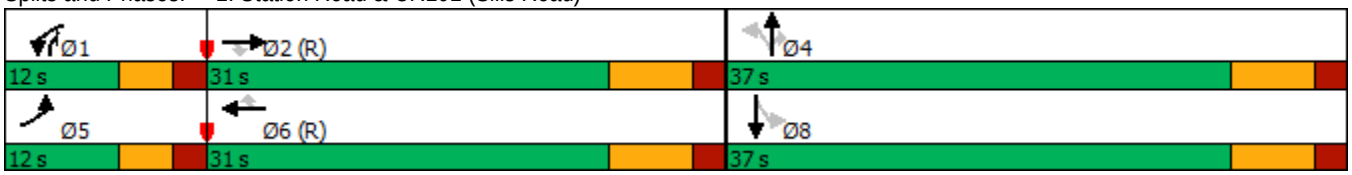
Timings
1: Station Road & CR101 (Sills Road)

07/02/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	171	621	7	124	548	3	11	231	113	8	296
Future Volume (vph)	171	621	7	124	548	3	11	231	113	8	296
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	pm+ov	Perm	NA
Protected Phases	5	2		1	6			4	1		8
Permitted Phases			2			6	4		4	8	
Detector Phase	5	2	2	1	6	6	4	4	1	8	8
Switch Phase											
Minimum Initial (s)	3.0	20.0	20.0	3.0	20.0	20.0	6.0	6.0	3.0	6.0	6.0
Minimum Split (s)	8.2	27.0	27.0	8.2	27.0	27.0	13.0	13.0	8.2	13.0	13.0
Total Split (s)	12.0	31.0	31.0	12.0	31.0	31.0	37.0	37.0	12.0	37.0	37.0
Total Split (%)	15.0%	38.8%	38.8%	15.0%	38.8%	38.8%	46.3%	46.3%	15.0%	46.3%	46.3%
Yellow Time (s)	3.2	5.0	5.0	3.2	5.0	5.0	5.0	5.0	3.2	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	5.2	7.0	7.0	5.2	7.0	7.0	7.0	7.0	5.2		7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
Act Effct Green (s)	12.3	24.8	24.8	9.5	22.1	22.1	26.5	26.5	43.0		26.5
Actuated g/C Ratio	0.15	0.31	0.31	0.12	0.28	0.28	0.33	0.33	0.54		0.33
v/c Ratio	0.67	0.60	0.01	0.67	0.61	0.01	0.07	0.41	0.15		0.85
Control Delay	52.0	26.9	0.0	54.6	28.3	0.0	17.3	22.1	5.1		36.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	52.0	26.9	0.0	54.6	28.3	0.0	17.3	22.1	5.1		36.5
LOS	D	C	A	D	C	A	B	C	A		D
Approach Delay		32.0			33.0			16.6			36.5
Approach LOS		C			C			B			D

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 13 (16%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 30.9	Intersection LOS: C
Intersection Capacity Utilization 76.3%	ICU Level of Service D
Analysis Period (min) 15	

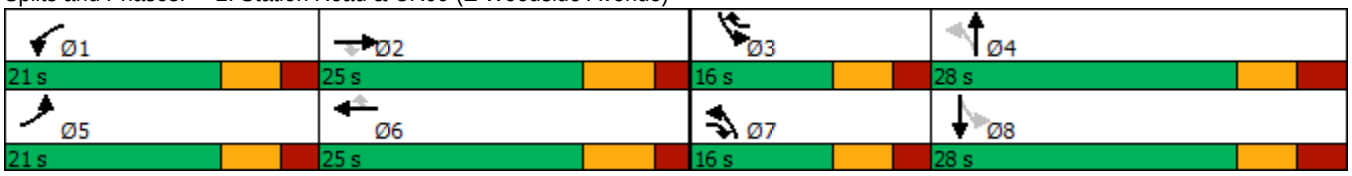
Splits and Phases: 1: Station Road & CR101 (Sills Road)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	36	230	95	113	185	67	76	333	94	325
Future Volume (vph)	36	230	95	113	185	67	76	333	94	325
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases	5	2	7	1	6	3	7	4	3	8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	7	1	6	3	7	4	3	8
Switch Phase										
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	10.0	3.0	10.0
Minimum Split (s)	15.5	17.3	9.5	9.5	17.3	9.5	9.5	17.5	9.5	17.5
Total Split (s)	21.0	25.0	16.0	21.0	25.0	16.0	16.0	28.0	16.0	28.0
Total Split (%)	23.3%	27.8%	17.8%	23.3%	27.8%	17.8%	17.8%	31.1%	17.8%	31.1%
Yellow Time (s)	4.0	4.8	4.0	4.0	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.5	2.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.3	6.5	6.5	7.3	6.5	6.5	7.5	6.5	7.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	None	None	None	None	None
Act Effct Green (s)	7.4	11.5	26.6	11.6	21.4	36.7	28.0	20.9	28.5	21.1
Actuated g/C Ratio	0.10	0.15	0.35	0.15	0.28	0.48	0.36	0.27	0.37	0.27
v/c Ratio	0.24	0.46	0.17	0.58	0.25	0.11	0.27	0.90	0.35	0.80
Control Delay	38.5	34.6	2.8	41.7	25.9	1.5	16.5	53.0	17.7	42.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	34.6	2.8	41.7	25.9	1.5	16.5	53.0	17.7	42.1
LOS	D	C	A	D	C	A	B	D	B	D
Approach Delay		26.6			26.3			47.4		37.2
Approach LOS		C			C			D		D

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 76.9	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 35.1	Intersection LOS: D
Intersection Capacity Utilization 66.0%	ICU Level of Service C
Analysis Period (min) 15	

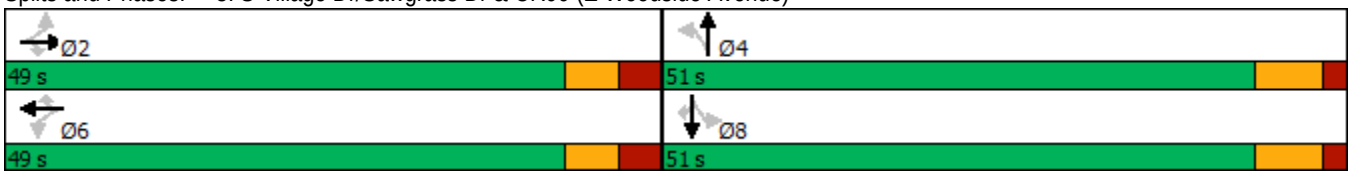
Splits and Phases: 2: Station Road & CR99 (E Woodside Avenue)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	162	178	32	8	114	11	15	10	25	13	227
Future Volume (vph)	162	178	32	8	114	11	15	10	25	13	227
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases		2			6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Detector Phase	2	2	2	6	6	6	4	4	8	8	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	25.3	25.3	25.3	25.3	25.3	25.3	25.0	25.0	25.0	25.0	25.0
Total Split (s)	49.0	49.0	49.0	49.0	49.0	49.0	51.0	51.0	51.0	51.0	51.0
Total Split (%)	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	51.0%	51.0%	51.0%	51.0%	51.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0	7.0	7.0	7.0
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	Max	Max	Max	Max	Max	Max	None	None	None	None	None
Act Effct Green (s)	41.8	41.8	41.8	41.8	41.8	41.8	8.3	8.3	8.3	8.3	8.3
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.65	0.65	0.13	0.13	0.13	0.13	0.13
v/c Ratio	0.24	0.09	0.04	0.01	0.06	0.01	0.16	0.10	0.22	0.09	0.68
Control Delay	6.3	4.8	1.8	5.1	4.8	0.3	27.0	19.4	27.6	24.7	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.3	4.8	1.8	5.1	4.8	0.3	27.0	19.4	27.6	24.7	10.9
LOS	A	A	A	A	A	A	C	B	C	C	B
Approach Delay		5.2			4.4			23.1		13.1	
Approach LOS		A			A			C		B	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 64.4	
Natural Cycle: 55	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 8.9	Intersection LOS: A
Intersection Capacity Utilization 40.1%	ICU Level of Service A
Analysis Period (min) 15	

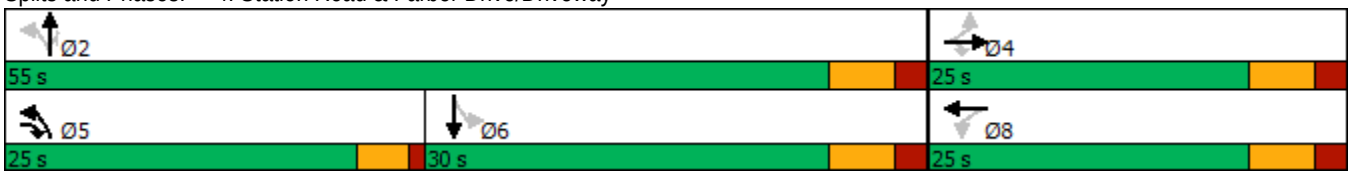
Splits and Phases: 3: S Village Dr/Sawgrass Dr & CR99 (E Woodside Avenue)



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Configurations								
Traffic Volume (vph)	90	0	200	2	0	157	453	454
Future Volume (vph)	90	0	200	2	0	157	453	454
Turn Type	Perm	NA	pm+ov	Perm	NA	pm+pt	NA	NA
Protected Phases		4	5		8	5	2	6
Permitted Phases	4		4	8		2		
Detector Phase	4	4	5	8	8	5	2	6
Switch Phase								
Minimum Initial (s)	6.0	6.0	3.0	6.0	6.0	3.0	10.0	10.0
Minimum Split (s)	12.0	12.0	9.0	12.0	12.0	9.0	16.0	16.0
Total Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	55.0	30.0
Total Split (%)	31.3%	31.3%	31.3%	31.3%	31.3%	31.3%	68.8%	37.5%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	4.0		6.0	4.0	6.0	6.0
Lead/Lag			Lead			Lead		Lag
Lead-Lag Optimize?			Yes			Yes		Yes
Recall Mode	None	None	None	None	None	None	Max	Max
Act Effct Green (s)		10.7	21.8		10.7	51.7	51.2	37.6
Actuated g/C Ratio		0.15	0.31		0.15	0.74	0.74	0.54
v/c Ratio		0.50	0.42		0.04	0.30	0.40	0.33
Control Delay		36.3	10.7		25.5	5.3	6.5	11.0
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		36.3	10.7		25.5	5.3	6.5	11.0
LOS		D	B		C	A	A	B
Approach Delay		18.6			25.5		6.2	11.0
Approach LOS		B			C		A	B

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 69.5	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 10.7	Intersection LOS: B
Intersection Capacity Utilization 59.3%	ICU Level of Service B
Analysis Period (min) 15	

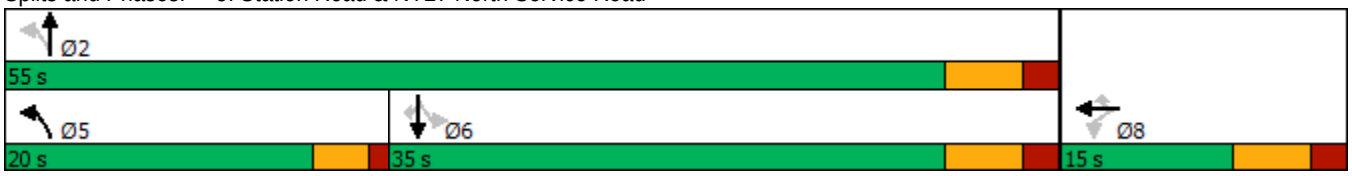
Splits and Phases: 4: Station Road & Farber Drive/Driveway



Lane Group	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	10	89	346	503	3	485	166
Future Volume (vph)	10	89	346	503	3	485	166
Turn Type	NA	Perm	pm+pt	NA	Perm	NA	Perm
Protected Phases	8		5	2		6	
Permitted Phases		8	2		6		6
Detector Phase	8	8	5	2	6	6	6
Switch Phase							
Minimum Initial (s)	6.0	6.0	3.0	10.0	10.0	10.0	10.0
Minimum Split (s)	12.0	12.0	7.0	16.0	16.0	16.0	16.0
Total Split (s)	15.0	15.0	20.0	55.0	35.0	35.0	35.0
Total Split (%)	21.4%	21.4%	28.6%	78.6%	50.0%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes	Yes
Recall Mode	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	8.8	8.8	51.0	49.0	33.3	33.3	33.3
Actuated g/C Ratio	0.13	0.13	0.73	0.70	0.48	0.48	0.48
v/c Ratio	0.78	0.52	0.68	0.47	0.01	0.66	0.24
Control Delay	54.7	38.8	10.9	6.0	11.7	19.6	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	38.8	10.9	6.0	11.7	19.6	3.0
LOS	D	D	B	A	B	B	A
Approach Delay	48.9			7.9		15.4	
Approach LOS	D			A		B	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 69.8	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 16.3	Intersection LOS: B
Intersection Capacity Utilization 66.6%	ICU Level of Service C
Analysis Period (min) 15	

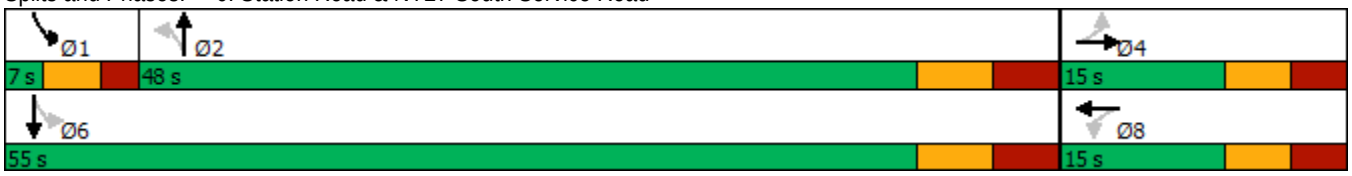
Splits and Phases: 5: Station Road & NY27 North Service Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	238	89	5	2	27	631	112	469
Future Volume (vph)	238	89	5	2	27	631	112	469
Turn Type	Perm	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases		4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	1	6
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	20.0	20.0	1.0	20.0
Minimum Split (s)	12.5	12.5	12.5	12.5	27.5	27.5	6.0	27.5
Total Split (s)	15.0	15.0	15.0	15.0	48.0	48.0	7.0	55.0
Total Split (%)	21.4%	21.4%	21.4%	21.4%	68.6%	68.6%	10.0%	78.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.5	3.5	2.0	3.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	7.5	7.5	5.0	7.5
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)	8.8	8.8		8.8	31.7	31.7	39.5	36.9
Actuated g/C Ratio	0.15	0.15		0.15	0.53	0.53	0.66	0.61
v/c Ratio	1.30	1.71		0.40	0.07	0.84	0.50	0.52
Control Delay	198.5	362.6		29.4	7.3	22.0	10.9	7.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	198.5	362.6		29.4	7.3	22.0	10.9	7.8
LOS	F	F		C	A	C	B	A
Approach Delay		298.9		29.4		21.4		8.3
Approach LOS		F		C		C		A

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 60.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.71	
Intersection Signal Delay: 101.6	Intersection LOS: F
Intersection Capacity Utilization 84.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Station Road & NY27 South Service Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	49	0	0	39	218	7
Future Volume (Veh/h)	49	0	0	39	218	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.64	0.64	0.91	0.91
Hourly flow rate (vph)	55	0	0	61	240	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	559					
pX, platoon unblocked						
vC, conflicting volume			55		116	55
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			55		116	55
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		73	99
cM capacity (veh/h)			1563		878	1018

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	55	61	248
Volume Left	0	0	240
Volume Right	0	0	8
cSH	1700	1700	882
Volume to Capacity	0.03	0.04	0.28
Queue Length 95th (ft)	0	0	29
Control Delay (s)	0.0	0.0	10.7
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.7
Approach LOS			B

Intersection Summary			
Average Delay	7.3		
Intersection Capacity Utilization	22.5%	ICU Level of Service	A
Analysis Period (min)	15		

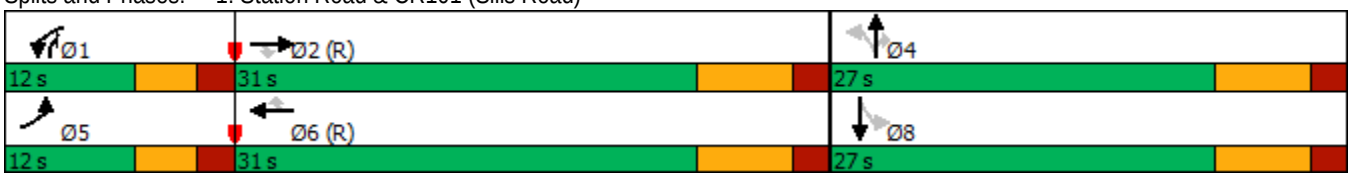
Timings
1: Station Road & CR101 (Sills Road)

07/02/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	128	449	25	146	425	9	15	208	115	4	279
Future Volume (vph)	128	449	25	146	425	9	15	208	115	4	279
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	pm+ov	Perm	NA
Protected Phases	5	2		1	6			4	1		8
Permitted Phases			2			6	4		4	8	
Detector Phase	5	2	2	1	6	6	4	4	1	8	8
Switch Phase											
Minimum Initial (s)	3.0	20.0	20.0	3.0	20.0	20.0	5.0	5.0	3.0	6.0	6.0
Minimum Split (s)	8.2	27.0	27.0	8.2	27.0	27.0	12.0	12.0	8.2	13.0	13.0
Total Split (s)	12.0	31.0	31.0	12.0	31.0	31.0	27.0	27.0	12.0	27.0	27.0
Total Split (%)	17.1%	44.3%	44.3%	17.1%	44.3%	44.3%	38.6%	38.6%	17.1%	38.6%	38.6%
Yellow Time (s)	3.2	5.0	5.0	3.2	5.0	5.0	5.0	5.0	3.2	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	5.2	7.0	7.0	5.2	7.0	7.0	7.0	7.0	5.2		7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
Act Effct Green (s)	7.5	20.0	20.0	8.9	21.5	21.5	21.9	21.9	37.8		21.9
Actuated g/C Ratio	0.11	0.29	0.29	0.13	0.31	0.31	0.31	0.31	0.54		0.31
v/c Ratio	0.70	0.46	0.05	0.82	0.48	0.03	0.09	0.40	0.15		0.81
Control Delay	52.8	22.4	0.2	65.3	22.1	0.1	17.1	20.6	2.2		32.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	52.8	22.4	0.2	65.3	22.1	0.1	17.1	20.6	2.2		32.0
LOS	D	C	A	E	C	A	B	C	A		C
Approach Delay		27.9			32.7			14.2			32.0
Approach LOS		C			C			B			C

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 13 (19%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 28.1	Intersection LOS: C
Intersection Capacity Utilization 68.2%	ICU Level of Service C
Analysis Period (min) 15	

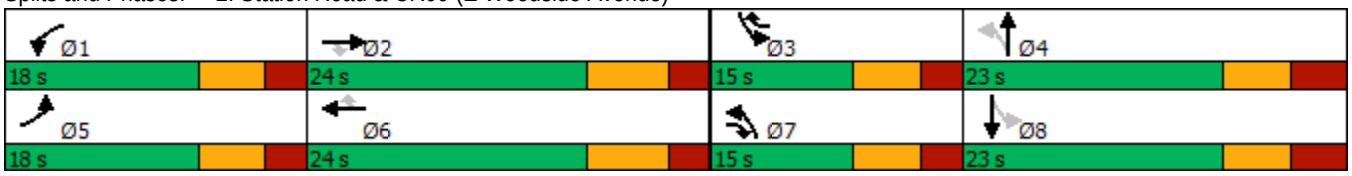
Splits and Phases: 1: Station Road & CR101 (Sills Road)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	33	140	108	67	115	57	100	327	78	357
Future Volume (vph)	33	140	108	67	115	57	100	327	78	357
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases	5	2	7	1	6	3	7	4	3	8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	7	1	6	3	7	4	3	8
Switch Phase										
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	10.0	3.0	10.0
Minimum Split (s)	9.5	17.3	9.5	9.5	17.3	9.5	9.5	17.5	9.5	17.5
Total Split (s)	18.0	24.0	15.0	18.0	24.0	15.0	15.0	23.0	15.0	23.0
Total Split (%)	22.5%	30.0%	18.8%	22.5%	30.0%	18.8%	18.8%	28.8%	18.8%	28.8%
Yellow Time (s)	4.0	4.8	4.0	4.0	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.5	2.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.3	6.5	6.5	7.3	6.5	6.5	7.5	6.5	7.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	None	None	None	None	None
Act Effct Green (s)	7.2	10.7	26.4	8.6	17.0	32.0	23.8	16.7	23.0	16.3
Actuated g/C Ratio	0.11	0.16	0.41	0.13	0.26	0.49	0.37	0.26	0.35	0.25
v/c Ratio	0.20	0.28	0.18	0.36	0.15	0.08	0.38	0.91	0.27	0.88
Control Delay	31.9	29.1	2.9	33.2	22.8	0.2	16.9	53.5	15.0	51.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.9	29.1	2.9	33.2	22.8	0.2	16.9	53.5	15.0	51.1
LOS	C	C	A	C	C	A	B	D	B	D
Approach Delay		19.4			20.3			45.9		45.2
Approach LOS		B			C			D		D

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 65	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 36.0	Intersection LOS: D
Intersection Capacity Utilization 62.3%	ICU Level of Service B
Analysis Period (min) 15	

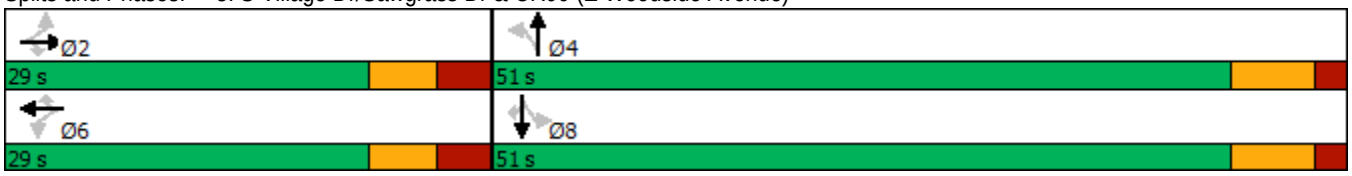
Splits and Phases: 2: Station Road & CR99 (E Woodside Avenue)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	130	158	16	40	141	7	9	9	5	12	179
Future Volume (vph)	130	158	16	40	141	7	9	9	5	12	179
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases		2			6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Detector Phase	2	2	2	6	6	6	4	4	8	8	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	25.3	25.3	25.3	25.3	25.3	25.3	25.0	25.0	25.0	25.0	25.0
Total Split (s)	29.0	29.0	29.0	29.0	29.0	29.0	51.0	51.0	51.0	51.0	51.0
Total Split (%)	36.3%	36.3%	36.3%	36.3%	36.3%	36.3%	63.8%	63.8%	63.8%	63.8%	63.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0	7.0	7.0	7.0
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	Max	Max	Max	None	None	None	None	None	None	None	None
Act Effct Green (s)	23.1	23.1	23.1	23.1	23.1	23.1	6.8	6.8	6.8	6.8	6.8
Actuated g/C Ratio	0.52	0.52	0.52	0.52	0.52	0.52	0.15	0.15	0.15	0.15	0.15
v/c Ratio	0.23	0.09	0.02	0.08	0.09	0.01	0.08	0.08	0.03	0.06	0.55
Control Delay	7.6	6.0	0.6	6.5	6.0	0.0	15.9	12.9	15.2	15.4	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.6	6.0	0.6	6.5	6.0	0.0	15.9	12.9	15.2	15.4	8.1
LOS	A	A	A	A	A	A	B	B	B	B	A
Approach Delay		6.4			5.9			14.0		8.7	
Approach LOS		A			A			B		A	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 44.2	
Natural Cycle: 55	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.55	
Intersection Signal Delay: 7.4	Intersection LOS: A
Intersection Capacity Utilization 37.2%	ICU Level of Service A
Analysis Period (min) 15	

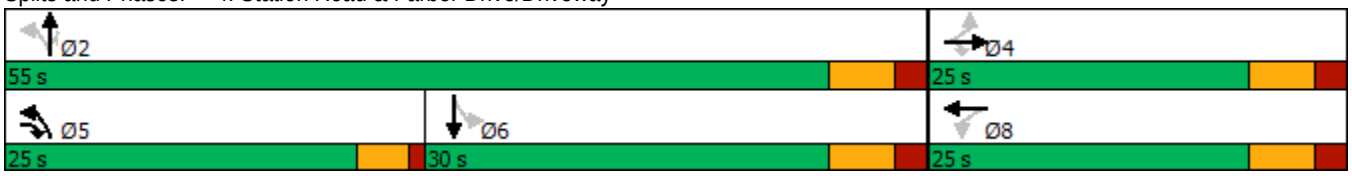
Splits and Phases: 3: S Village Dr/Sawgrass Dr & CR99 (E Woodside Avenue)



Lane Group	EBL	EBT	EBR	NBL	NBT	SBT	Ø8
Lane Configurations							
Traffic Volume (vph)	154	0	374	296	351	410	
Future Volume (vph)	154	0	374	296	351	410	
Turn Type	Perm	NA	pm+ov	pm+pt	NA	NA	
Protected Phases		4	5	5	2	6	8
Permitted Phases	4		4	2			
Detector Phase	4	4	5	5	2	6	
Switch Phase							
Minimum Initial (s)	6.0	6.0	3.0	3.0	10.0	10.0	6.0
Minimum Split (s)	12.0	12.0	9.0	9.0	16.0	16.0	12.0
Total Split (s)	25.0	25.0	25.0	25.0	55.0	30.0	25.0
Total Split (%)	31.3%	31.3%	31.3%	31.3%	68.8%	37.5%	31%
Yellow Time (s)	4.0	4.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	4.0	4.0	6.0	6.0	
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Recall Mode	None	None	None	None	Max	Max	None
Act Effct Green (s)		14.1	33.5	51.1	49.1	31.6	
Actuated g/C Ratio		0.19	0.45	0.68	0.65	0.42	
v/c Ratio		0.67	0.56	0.64	0.34	0.52	
Control Delay		40.9	12.9	11.8	7.4	17.6	
Queue Delay		0.0	0.0	0.0	0.0	0.0	
Total Delay		40.9	12.9	11.8	7.4	17.6	
LOS		D	B	B	A	B	
Approach Delay		21.1			9.4	17.6	
Approach LOS		C			A	B	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 75.2	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 15.7	Intersection LOS: B
Intersection Capacity Utilization 59.1%	ICU Level of Service B
Analysis Period (min) 15	

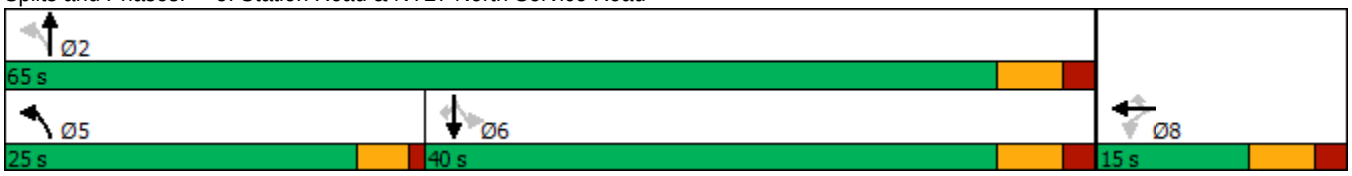
Splits and Phases: 4: Station Road & Farber Drive/Driveway



Lane Group	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	21	108	350	602	4	536	200
Future Volume (vph)	21	108	350	602	4	536	200
Turn Type	NA	Perm	pm+pt	NA	Perm	NA	Perm
Protected Phases	8		5	2		6	
Permitted Phases		8	2		6		6
Detector Phase	8	8	5	2	6	6	6
Switch Phase							
Minimum Initial (s)	6.0	6.0	3.0	10.0	10.0	10.0	10.0
Minimum Split (s)	12.0	12.0	7.0	16.0	16.0	16.0	16.0
Total Split (s)	15.0	15.0	25.0	65.0	40.0	40.0	40.0
Total Split (%)	18.8%	18.8%	31.3%	81.3%	50.0%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes	Yes
Recall Mode	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	9.0	9.0	61.0	59.0	43.6	43.6	43.6
Actuated g/C Ratio	0.11	0.11	0.76	0.74	0.54	0.54	0.54
v/c Ratio	0.82	0.68	0.59	0.47	0.01	0.56	0.22
Control Delay	67.3	55.1	7.1	5.5	10.2	15.6	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.3	55.1	7.1	5.5	10.2	15.6	2.4
LOS	E	E	A	A	B	B	A
Approach Delay	62.1			6.1		12.0	
Approach LOS	E			A		B	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 16.0	Intersection LOS: B
Intersection Capacity Utilization 68.9%	ICU Level of Service C
Analysis Period (min) 15	

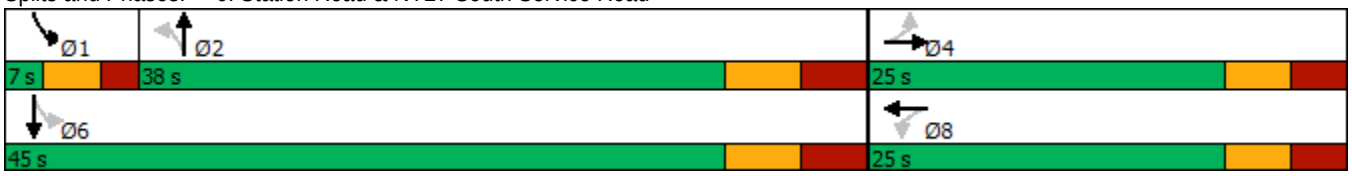
Splits and Phases: 5: Station Road & NY27 North Service Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	301	128	3	0	34	644	104	459
Future Volume (vph)	301	128	3	0	34	644	104	459
Turn Type	Perm	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases		4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	1	6
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	20.0	20.0	1.0	20.0
Minimum Split (s)	12.5	12.5	12.5	12.5	27.5	27.5	6.0	27.5
Total Split (s)	25.0	25.0	25.0	25.0	38.0	38.0	7.0	45.0
Total Split (%)	35.7%	35.7%	35.7%	35.7%	54.3%	54.3%	10.0%	64.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.5	3.5	2.0	3.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	7.5	7.5	5.0	7.5
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)	18.5	18.5		18.5	30.2	30.2	39.7	37.2
Actuated g/C Ratio	0.27	0.27		0.27	0.43	0.43	0.57	0.53
v/c Ratio	0.92	0.98		0.08	0.13	0.97	0.77	0.68
Control Delay	58.9	67.8		0.3	13.3	47.3	44.7	16.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	58.9	67.8		0.3	13.3	47.3	44.7	16.0
LOS	E	E		A	B	D	D	B
Approach Delay		63.9		0.3		45.7		20.5
Approach LOS		E		A		D		C

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 69.7	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 42.7	Intersection LOS: D
Intersection Capacity Utilization 88.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Station Road & NY27 South Service Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	19	0	0	36	253	4
Future Volume (Veh/h)	19	0	0	36	253	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.81	0.81	0.88	0.88
Hourly flow rate (vph)	30	0	0	44	288	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	559					
pX, platoon unblocked						
vC, conflicting volume			30		74	30
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			30		74	30
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		69	100
cM capacity (veh/h)			1596		932	1050

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	30	44	293
Volume Left	0	0	288
Volume Right	0	0	5
cSH	1700	1700	934
Volume to Capacity	0.02	0.03	0.31
Queue Length 95th (ft)	0	0	34
Control Delay (s)	0.0	0.0	10.6
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.6
Approach LOS			B

Intersection Summary			
Average Delay	8.5		
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		

Build Capacity Analyses

Timings
1: Station Road & CR101 (Sills Road)

07/02/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	115	525	8	84	371	4	12	243	119	4	278
Future Volume (vph)	115	525	8	84	371	4	12	243	119	4	278
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	pm+ov	Perm	NA
Protected Phases	5	2		1	6			4	1		8
Permitted Phases			2			6	4		4	8	
Detector Phase	5	2	2	1	6	6	4	4	1	8	8
Switch Phase											
Minimum Initial (s)	3.0	20.0	20.0	3.0	20.0	20.0	6.0	6.0	3.0	6.0	6.0
Minimum Split (s)	8.2	27.0	27.0	8.2	27.0	27.0	13.0	13.0	8.2	13.0	13.0
Total Split (s)	13.0	32.0	32.0	13.0	32.0	32.0	25.0	25.0	13.0	25.0	25.0
Total Split (%)	18.6%	45.7%	45.7%	18.6%	45.7%	45.7%	35.7%	35.7%	18.6%	35.7%	35.7%
Yellow Time (s)	3.2	5.0	5.0	3.2	5.0	5.0	5.0	5.0	3.2	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	5.2	7.0	7.0	5.2	7.0	7.0	7.0	7.0	5.2		7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
Act Effct Green (s)	7.7	21.1	21.1	7.5	20.8	20.8	22.3	22.3	36.7		22.3
Actuated g/C Ratio	0.11	0.30	0.30	0.11	0.30	0.30	0.32	0.32	0.52		0.32
v/c Ratio	0.74	0.59	0.02	0.62	0.45	0.01	0.09	0.63	0.21		0.99
Control Delay	57.8	23.6	0.0	48.1	21.5	0.0	19.4	28.3	3.5		62.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	57.8	23.6	0.0	48.1	21.5	0.0	19.4	28.3	3.5		62.6
LOS	E	C	A	D	C	A	B	C	A		E
Approach Delay		29.4			26.1			20.1			62.6
Approach LOS		C			C			C			E

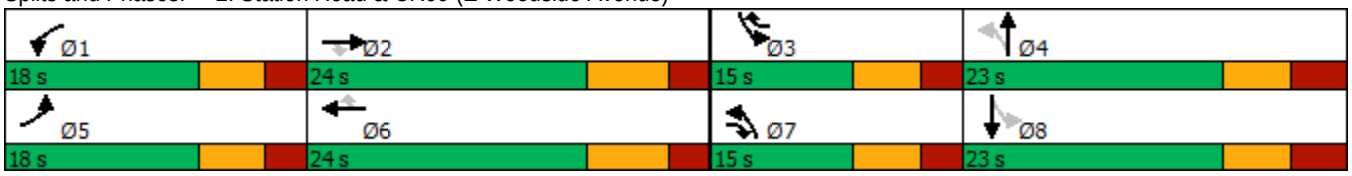
Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 13 (19%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 34.4	Intersection LOS: C
Intersection Capacity Utilization 65.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Station Road & CR101 (Sills Road)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	16	170	70	68	216	38	184	309	36	281
Future Volume (vph)	16	170	70	68	216	38	184	309	36	281
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases	5	2	7	1	6	3	7	4	3	8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	7	1	6	3	7	4	3	8
Switch Phase										
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	10.0	3.0	10.0
Minimum Split (s)	9.5	17.3	9.5	9.5	17.3	9.5	9.5	17.5	9.5	17.5
Total Split (s)	18.0	24.0	15.0	18.0	24.0	15.0	15.0	23.0	15.0	23.0
Total Split (%)	22.5%	30.0%	18.8%	22.5%	30.0%	18.8%	18.8%	28.8%	18.8%	28.8%
Yellow Time (s)	4.0	4.8	4.0	4.0	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.5	2.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.3	6.5	6.5	7.3	6.5	6.5	7.5	6.5	7.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	None	None	None	None	None
Act Effct Green (s)	6.6	11.0	27.0	8.8	18.1	32.3	28.0	20.5	23.5	15.7
Actuated g/C Ratio	0.10	0.16	0.39	0.13	0.26	0.47	0.40	0.30	0.34	0.23
v/c Ratio	0.14	0.43	0.15	0.42	0.30	0.06	0.74	1.00	0.19	1.04
Control Delay	32.9	30.3	1.5	36.0	22.9	0.2	33.2	72.4	15.2	88.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.9	30.3	1.5	36.0	22.9	0.2	33.2	72.4	15.2	88.7
LOS	C	C	A	D	C	A	C	E	B	F
Approach Delay		22.6			23.0			60.2		80.8
Approach LOS		C			C			E		F

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 69.2	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 50.4	Intersection LOS: D
Intersection Capacity Utilization 61.5%	ICU Level of Service B
Analysis Period (min) 15	

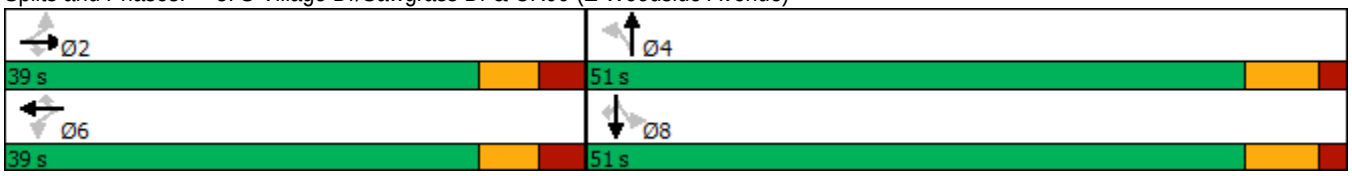
Splits and Phases: 2: Station Road & CR99 (E Woodside Avenue)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	190	110	15	11	115	15	42	22	9	7	192
Future Volume (vph)	190	110	15	11	115	15	42	22	9	7	192
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases		2			6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Detector Phase	2	2	2	6	6	6	4	4	8	8	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	25.3	25.3	25.3	25.3	25.3	25.3	25.0	25.0	25.0	25.0	25.0
Total Split (s)	39.0	39.0	39.0	39.0	39.0	39.0	51.0	51.0	51.0	51.0	51.0
Total Split (%)	43.3%	43.3%	43.3%	43.3%	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%	56.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0	7.0	7.0	7.0
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	Max	Max	Max	Max	Max	Max	None	None	None	None	None
Act Effct Green (s)	33.6	33.6	33.6	33.6	33.6	33.6	8.3	8.3	8.3	8.3	8.3
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.60	0.60	0.15	0.15	0.15	0.15	0.15
v/c Ratio	0.36	0.08	0.03	0.02	0.07	0.02	0.35	0.20	0.06	0.04	0.53
Control Delay	8.2	5.4	0.9	5.5	5.4	0.6	26.2	15.4	20.0	19.6	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.2	5.4	0.9	5.5	5.4	0.6	26.2	15.4	20.0	19.6	8.8
LOS	A	A	A	A	A	A	C	B	B	B	A
Approach Delay		6.9			4.9			21.2		9.6	
Approach LOS		A			A			C		A	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 56.2	
Natural Cycle: 55	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 9.1	Intersection LOS: A
Intersection Capacity Utilization 38.1%	ICU Level of Service A
Analysis Period (min) 15	

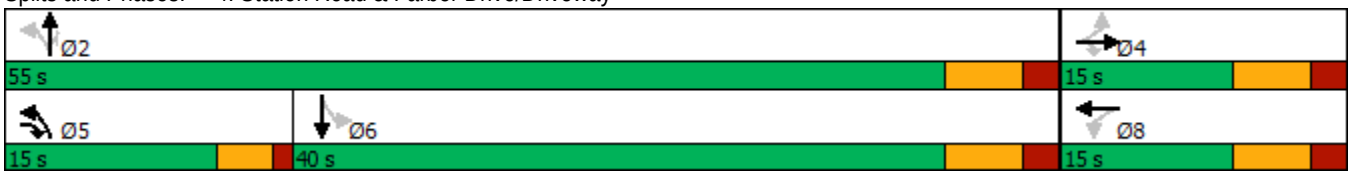
Splits and Phases: 3: S Village Dr/Sawgrass Dr & CR99 (E Woodside Avenue)



Lane Group	EBL	EBT	EBR	NBL	NBT	NBR	SBT	Ø8
Lane Configurations								
Traffic Volume (vph)	32	0	79	93	582	2	414	
Future Volume (vph)	32	0	79	93	582	2	414	
Turn Type	Perm	NA	pm+ov	pm+pt	NA	Perm	NA	
Protected Phases		4	5	5	2		6	8
Permitted Phases	4		4	2		2		
Detector Phase	4	4	5	5	2	2	6	
Switch Phase								
Minimum Initial (s)	6.0	6.0	3.0	3.0	10.0	10.0	10.0	6.0
Minimum Split (s)	12.0	12.0	9.0	9.0	16.0	16.0	16.0	12.0
Total Split (s)	15.0	15.0	15.0	15.0	55.0	55.0	40.0	15.0
Total Split (%)	21.4%	21.4%	21.4%	21.4%	78.6%	78.6%	57.1%	21%
Yellow Time (s)	4.0	4.0	3.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	1.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	4.0	4.0	6.0	6.0	6.0	
Lead/Lag			Lead	Lead			Lag	
Lead-Lag Optimize?			Yes	Yes			Yes	
Recall Mode	None	None	None	None	Max	Max	Max	None
Act Effct Green (s)		7.7	15.2	53.9	54.6	54.6	41.1	
Actuated g/C Ratio		0.12	0.23	0.81	0.82	0.82	0.62	
v/c Ratio		0.33	0.32	0.19	0.49	0.00	0.35	
Control Delay		33.1	5.6	3.3	5.5	0.0	8.0	
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		33.1	5.6	3.3	5.5	0.0	8.0	
LOS		C	A	A	A	A	A	
Approach Delay		13.5			5.2		8.0	
Approach LOS		B			A		A	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 66.4	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.49	
Intersection Signal Delay: 7.3	Intersection LOS: A
Intersection Capacity Utilization 64.0%	ICU Level of Service B
Analysis Period (min) 15	

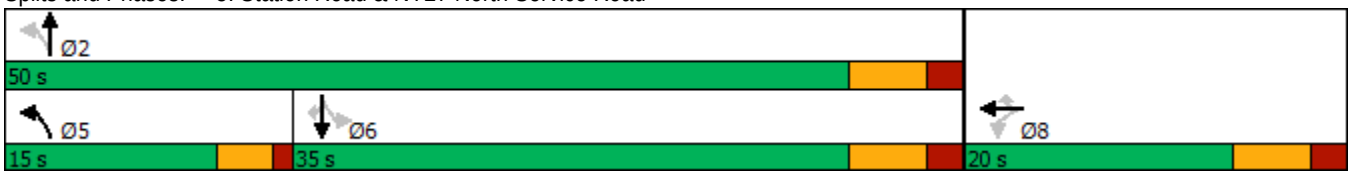
Splits and Phases: 4: Station Road & Farber Drive/Driveway



Lane Group	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	56	154	219	527	2	373	120
Future Volume (vph)	56	154	219	527	2	373	120
Turn Type	NA	Perm	pm+pt	NA	Perm	NA	Perm
Protected Phases	8		5	2		6	
Permitted Phases		8	2		6		6
Detector Phase	8	8	5	2	6	6	6
Switch Phase							
Minimum Initial (s)	6.0	6.0	3.0	10.0	10.0	10.0	10.0
Minimum Split (s)	12.0	12.0	7.0	16.0	16.0	16.0	16.0
Total Split (s)	20.0	20.0	15.0	50.0	35.0	35.0	35.0
Total Split (%)	28.6%	28.6%	21.4%	71.4%	50.0%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes	Yes
Recall Mode	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	13.4	13.4	46.0	44.0	30.6	30.6	30.6
Actuated g/C Ratio	0.19	0.19	0.66	0.63	0.44	0.44	0.44
v/c Ratio	0.84	0.56	0.48	0.56	0.01	0.65	0.21
Control Delay	52.1	33.6	8.3	9.9	12.0	21.1	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.1	33.6	8.3	9.9	12.0	21.1	3.3
LOS	D	C	A	A	B	C	A
Approach Delay	45.1			9.5		16.7	
Approach LOS	D			A		B	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 69.4	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 19.8	Intersection LOS: B
Intersection Capacity Utilization 65.8%	ICU Level of Service C
Analysis Period (min) 15	

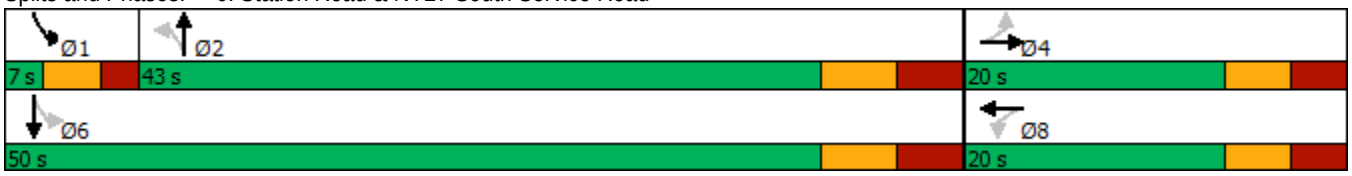
Splits and Phases: 5: Station Road & NY27 North Service Road



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	190	24	0	2	559	87	468
Future Volume (vph)	190	24	0	2	559	87	468
Turn Type	Perm	NA	NA	Perm	NA	pm+pt	NA
Protected Phases		4	8		2	1	6
Permitted Phases	4			2		6	
Detector Phase	4	4	8	2	2	1	6
Switch Phase							
Minimum Initial (s)	6.0	6.0	6.0	20.0	20.0	1.0	20.0
Minimum Split (s)	12.5	12.5	12.5	27.5	27.5	6.0	27.5
Total Split (s)	20.0	20.0	20.0	43.0	43.0	7.0	50.0
Total Split (%)	28.6%	28.6%	28.6%	61.4%	61.4%	10.0%	71.4%
Yellow Time (s)	3.5	3.5	3.5	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.5	3.5	2.0	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	7.5	7.5	5.0	7.5
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	Min	Min	None	Min
Act Effct Green (s)	13.8	13.8	13.8	30.1	30.1	37.9	35.4
Actuated g/C Ratio	0.22	0.22	0.22	0.47	0.47	0.60	0.56
v/c Ratio	0.95	1.27	0.07	0.01	0.86	0.42	0.68
Control Delay	75.0	176.1	0.2	8.5	28.4	10.5	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.0	176.1	0.2	8.5	28.4	10.5	14.1
LOS	E	F	A	A	C	B	B
Approach Delay		134.8	0.3		28.4		13.5
Approach LOS		F	A		C		B

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 63.5	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.27	
Intersection Signal Delay: 55.8	Intersection LOS: E
Intersection Capacity Utilization 77.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Station Road & NY27 South Service Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	21	0	0	44	346	11
Future Volume (Veh/h)	21	0	0	44	346	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.70	0.70	0.94	0.94	0.96	0.96
Hourly flow rate (vph)	30	0	0	47	360	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	559					
pX, platoon unblocked						
vC, conflicting volume			30		77	30
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			30		77	30
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			100		60	99
cM capacity (veh/h)			1596		907	1050

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	30	47	371
Volume Left	0	0	360
Volume Right	0	0	11
cSH	1700	1700	910
Volume to Capacity	0.02	0.03	0.41
Queue Length 95th (ft)	0	0	50
Control Delay (s)	0.0	0.0	11.6
Lane LOS			B
Approach Delay (s)	0.0	0.0	11.6
Approach LOS			B

Intersection Summary			
Average Delay	9.6		
Intersection Capacity Utilization	37.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	37	0	0	38	22	6
Future Volume (Veh/h)	37	0	0	38	22	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	40	0	0	41	24	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					238	
pX, platoon unblocked						
vC, conflicting volume	68	28	31			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	68	28	31			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	100	100			
cM capacity (veh/h)	936	1048	1582			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	40	41	31
Volume Left	40	0	0
Volume Right	0	0	7
cSH	936	1582	1700
Volume to Capacity	0.04	0.00	0.02
Queue Length 95th (ft)	3	0	0
Control Delay (s)	9.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	284	22	0	291	0	0
Future Volume (Veh/h)	284	22	0	291	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	309	24	0	316	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	666			666		
pX, platoon unblocked			0.99		0.99	0.99
vC, conflicting volume			333		467	154
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			316		451	136
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1233		534	882

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2
Volume Total	154	154	24	158	158
Volume Left	0	0	0	0	0
Volume Right	0	0	24	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.09	0.09	0.01	0.09	0.09
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					
Approach Delay (s)	0.0			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	11.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	44	44	580	34	34	428
Future Volume (Veh/h)	44	44	580	34	34	428
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	48	48	630	37	37	465
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			632			
pX, platoon unblocked	0.85	0.85			0.85	
vC, conflicting volume	1188	648			667	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1131	495			517	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	74	90			96	
cM capacity (veh/h)	183	487			889	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	48	48	667	502
Volume Left	48	0	0	37
Volume Right	0	48	37	0
cSH	183	487	1700	889
Volume to Capacity	0.26	0.10	0.39	0.04
Queue Length 95th (ft)	25	8	0	3
Control Delay (s)	31.6	13.2	0.0	1.2
Lane LOS	D	B		A
Approach Delay (s)	22.4		0.0	1.2
Approach LOS	C			

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	19	387	0	0	15
Future Volume (Veh/h)	0	19	387	0	0	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	21	421	0	0	16
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		416				
pX, platoon unblocked						
vC, conflicting volume	421				442	421
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	421				442	421
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	97
cM capacity (veh/h)	1138				573	632

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	21	421	16
Volume Left	0	0	0
Volume Right	0	0	16
cSH	1700	1700	632
Volume to Capacity	0.01	0.25	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.0	10.8
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.8
Approach LOS			B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	37.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	17	15	37	0	0	7
Future Volume (Veh/h)	17	15	37	0	0	7
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	16	40	0	0	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		856				
pX, platoon unblocked						
vC, conflicting volume	40				92	40
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	40				92	40
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	99
cM capacity (veh/h)	1570				898	1031

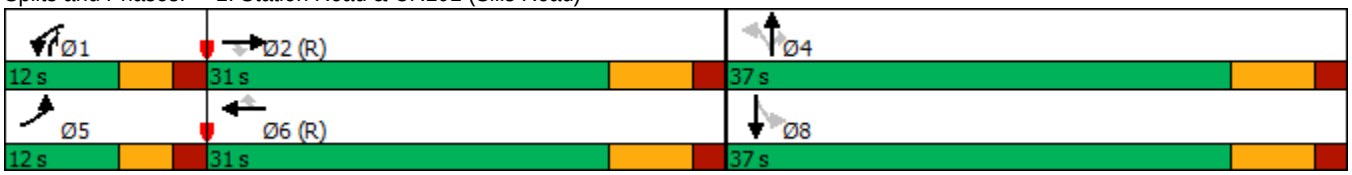
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	34	40	8
Volume Left	18	0	0
Volume Right	0	0	8
cSH	1570	1700	1031
Volume to Capacity	0.01	0.02	0.01
Queue Length 95th (ft)	1	0	1
Control Delay (s)	3.9	0.0	8.5
Lane LOS	A		A
Approach Delay (s)	3.9	0.0	8.5
Approach LOS			A

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	18.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	171	621	7	143	548	3	11	258	127	8	334
Future Volume (vph)	171	621	7	143	548	3	11	258	127	8	334
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	pm+ov	Perm	NA
Protected Phases	5	2		1	6			4	1		8
Permitted Phases			2			6	4		4	8	
Detector Phase	5	2	2	1	6	6	4	4	1	8	8
Switch Phase											
Minimum Initial (s)	3.0	20.0	20.0	3.0	20.0	20.0	6.0	6.0	3.0	6.0	6.0
Minimum Split (s)	8.2	27.0	27.0	8.2	27.0	27.0	13.0	13.0	8.2	13.0	13.0
Total Split (s)	12.0	31.0	31.0	12.0	31.0	31.0	37.0	37.0	12.0	37.0	37.0
Total Split (%)	15.0%	38.8%	38.8%	15.0%	38.8%	38.8%	46.3%	46.3%	15.0%	46.3%	46.3%
Yellow Time (s)	3.2	5.0	5.0	3.2	5.0	5.0	5.0	5.0	3.2	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	5.2	7.0	7.0	5.2	7.0	7.0	7.0	7.0	5.2		7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
Act Effct Green (s)	11.4	22.6	22.6	10.5	21.6	21.6	27.8	27.8	45.2		27.8
Actuated g/C Ratio	0.14	0.28	0.28	0.13	0.27	0.27	0.35	0.35	0.56		0.35
v/c Ratio	0.72	0.66	0.01	0.69	0.62	0.01	0.07	0.44	0.16		0.88
Control Delay	56.5	29.2	0.0	55.7	28.7	0.0	17.1	21.9	5.4		38.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	56.5	29.2	0.0	55.7	28.7	0.0	17.1	21.9	5.4		38.9
LOS	E	C	A	E	C	A	B	C	A		D
Approach Delay		34.8			34.1			16.5			38.9
Approach LOS		C			C			B			D

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 13 (16%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 32.5	Intersection LOS: C
Intersection Capacity Utilization 78.2%	ICU Level of Service D
Analysis Period (min) 15	

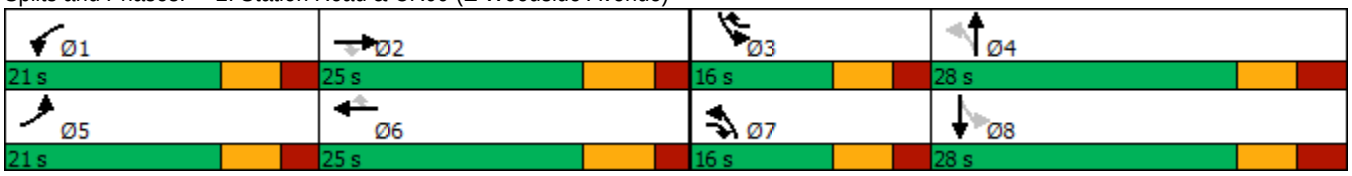
Splits and Phases: 1: Station Road & CR101 (Sills Road)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	36	249	114	113	199	81	90	360	113	363
Future Volume (vph)	36	249	114	113	199	81	90	360	113	363
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases	5	2	7	1	6	3	7	4	3	8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	7	1	6	3	7	4	3	8
Switch Phase										
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	10.0	3.0	10.0
Minimum Split (s)	15.5	17.3	9.5	9.5	17.3	9.5	9.5	17.5	9.5	17.5
Total Split (s)	21.0	25.0	16.0	21.0	25.0	16.0	16.0	28.0	16.0	28.0
Total Split (%)	23.3%	27.8%	17.8%	23.3%	27.8%	17.8%	17.8%	31.1%	17.8%	31.1%
Yellow Time (s)	4.0	4.8	4.0	4.0	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.5	2.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.3	6.5	6.5	7.3	6.5	6.5	7.5	6.5	7.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	None	None	None	None	None
Act Effct Green (s)	7.4	11.8	27.0	11.6	21.3	36.9	29.6	20.6	30.1	20.8
Actuated g/C Ratio	0.09	0.15	0.34	0.14	0.27	0.46	0.37	0.26	0.38	0.26
v/c Ratio	0.25	0.51	0.21	0.60	0.28	0.14	0.37	1.01	0.43	0.93
Control Delay	39.2	35.9	4.2	43.4	26.5	2.4	18.7	76.1	19.4	58.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	35.9	4.2	43.4	26.5	2.4	18.7	76.1	19.4	58.7
LOS	D	D	A	D	C	A	B	E	B	E
Approach Delay		27.1			26.3			66.5		50.2
Approach LOS		C			C			E		D

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 80.1	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 43.9	Intersection LOS: D
Intersection Capacity Utilization 68.4%	ICU Level of Service C
Analysis Period (min) 15	

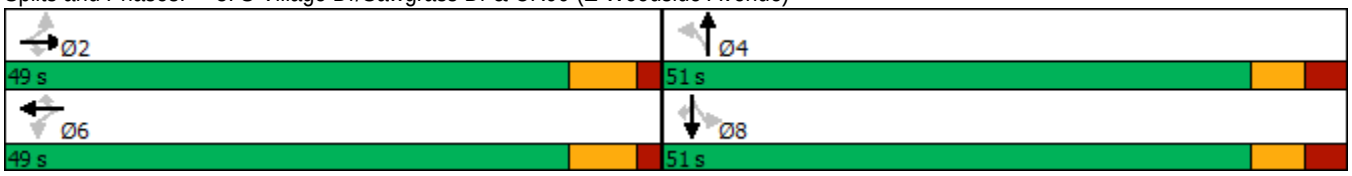
Splits and Phases: 2: Station Road & CR99 (E Woodside Avenue)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	162	178	32	17	114	11	42	10	25	13	227
Future Volume (vph)	162	178	32	17	114	11	42	10	25	13	227
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases		2			6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Detector Phase	2	2	2	6	6	6	4	4	8	8	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	25.3	25.3	25.3	25.3	25.3
Total Split (s)	49.0	49.0	49.0	49.0	49.0	49.0	51.0	51.0	51.0	51.0	51.0
Total Split (%)	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	51.0%	51.0%	51.0%	51.0%	51.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	3.3	3.3	3.3	3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.3	7.3	7.3	7.3	7.3
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	Max	Max	Max	Max	Max	Max	None	None	None	None	None
Act Effct Green (s)	42.1	42.1	42.1	42.1	42.1	42.1	9.3	9.3	9.3	9.3	9.3
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.64	0.64	0.14	0.14	0.14	0.14	0.14
v/c Ratio	0.24	0.09	0.04	0.03	0.06	0.01	0.42	0.13	0.20	0.08	0.66
Control Delay	6.7	5.1	1.7	5.4	5.1	0.1	34.3	16.2	26.9	24.4	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	5.1	1.7	5.4	5.1	0.1	34.3	16.2	26.9	24.4	10.1
LOS	A	A	A	A	A	A	C	B	C	C	B
Approach Delay		5.5			4.7			28.0		12.4	
Approach LOS		A			A			C		B	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 65.7	
Natural Cycle: 55	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 9.8	Intersection LOS: A
Intersection Capacity Utilization 40.4%	ICU Level of Service A
Analysis Period (min) 15	

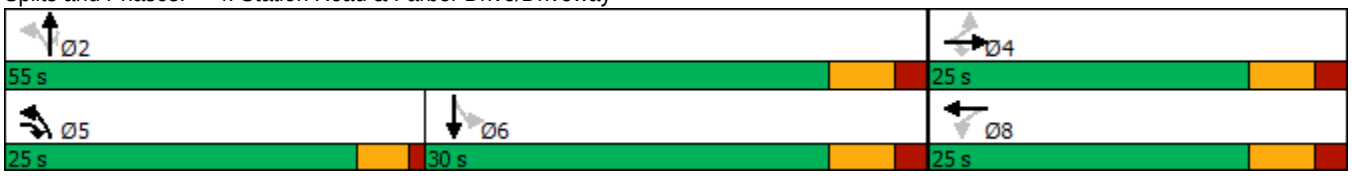
Splits and Phases: 3: S Village Dr/Sawgrass Dr & CR99 (E Woodside Avenue)



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Configurations								
Traffic Volume (vph)	90	0	200	2	0	157	509	495
Future Volume (vph)	90	0	200	2	0	157	509	495
Turn Type	Perm	NA	pm+ov	Perm	NA	pm+pt	NA	NA
Protected Phases		4	5		8	5	2	6
Permitted Phases	4		4	8		2		
Detector Phase	4	4	5	8	8	5	2	6
Switch Phase								
Minimum Initial (s)	6.0	6.0	3.0	6.0	6.0	3.0	10.0	10.0
Minimum Split (s)	12.0	12.0	9.0	12.0	12.0	9.0	16.0	16.0
Total Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	55.0	30.0
Total Split (%)	31.3%	31.3%	31.3%	31.3%	31.3%	31.3%	68.8%	37.5%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	4.0		6.0	4.0	6.0	6.0
Lead/Lag			Lead			Lead		Lag
Lead-Lag Optimize?			Yes			Yes		Yes
Recall Mode	None	None	None	None	None	None	Max	Max
Act Effct Green (s)		10.7	21.9		10.7	51.7	51.2	37.5
Actuated g/C Ratio		0.15	0.32		0.15	0.74	0.74	0.54
v/c Ratio		0.50	0.43		0.04	0.31	0.44	0.36
Control Delay		36.3	12.2		25.5	5.4	7.0	11.3
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		36.3	12.2		25.5	5.4	7.0	11.3
LOS		D	B		C	A	A	B
Approach Delay		19.7			25.5		6.6	11.3
Approach LOS		B			C		A	B

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 69.5	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 11.0	Intersection LOS: B
Intersection Capacity Utilization 63.3%	ICU Level of Service B
Analysis Period (min) 15	

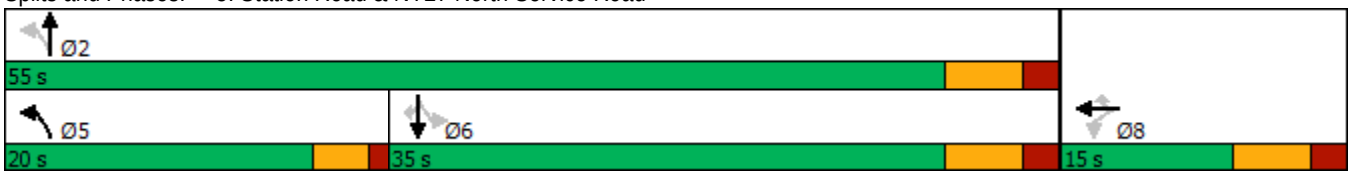
Splits and Phases: 4: Station Road & Farber Drive/Driveway



Lane Group	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	17	108	346	541	3	499	193
Future Volume (vph)	17	108	346	541	3	499	193
Turn Type	NA	Perm	pm+pt	NA	Perm	NA	Perm
Protected Phases	8		5	2		6	
Permitted Phases		8	2		6		6
Detector Phase	8	8	5	2	6	6	6
Switch Phase							
Minimum Initial (s)	6.0	6.0	3.0	10.0	10.0	10.0	10.0
Minimum Split (s)	12.0	12.0	7.0	16.0	16.0	16.0	16.0
Total Split (s)	15.0	15.0	20.0	55.0	35.0	35.0	35.0
Total Split (%)	21.4%	21.4%	28.6%	78.6%	50.0%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes	Yes
Recall Mode	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	9.0	9.0	51.0	49.0	33.0	33.0	33.0
Actuated g/C Ratio	0.13	0.13	0.73	0.70	0.47	0.47	0.47
v/c Ratio	0.87	0.62	0.69	0.52	0.01	0.68	0.27
Control Delay	66.9	44.5	12.0	6.5	12.0	20.9	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.9	44.5	12.0	6.5	12.0	20.9	3.0
LOS	E	D	B	A	B	C	A
Approach Delay	58.4			8.5		15.9	
Approach LOS	E			A		B	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 18.6	Intersection LOS: B
Intersection Capacity Utilization 68.5%	ICU Level of Service C
Analysis Period (min) 15	

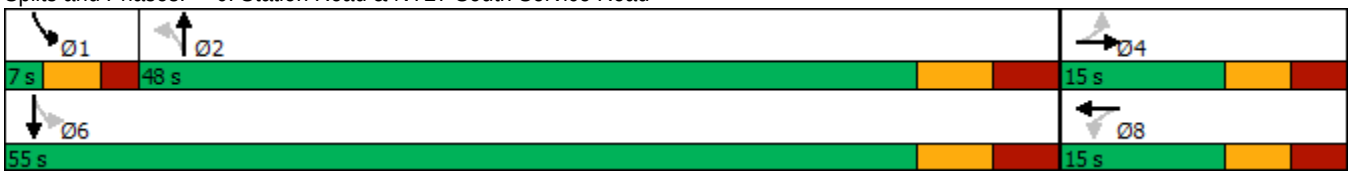
Splits and Phases: 5: Station Road & NY27 North Service Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	285	89	5	2	27	631	139	469
Future Volume (vph)	285	89	5	2	27	631	139	469
Turn Type	Perm	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases		4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	1	6
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	20.0	20.0	1.0	20.0
Minimum Split (s)	12.5	12.5	12.5	12.5	27.5	27.5	6.0	27.5
Total Split (s)	15.0	15.0	15.0	15.0	48.0	48.0	7.0	55.0
Total Split (%)	21.4%	21.4%	21.4%	21.4%	68.6%	68.6%	10.0%	78.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.5	3.5	2.0	3.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	7.5	7.5	5.0	7.5
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)	8.8	8.8		8.8	31.7	31.7	39.5	36.9
Actuated g/C Ratio	0.15	0.15		0.15	0.53	0.53	0.66	0.61
v/c Ratio	1.56	1.71		0.40	0.07	0.84	0.62	0.52
Control Delay	302.0	362.6		29.4	7.3	22.0	16.7	7.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	302.0	362.6		29.4	7.3	22.0	16.7	7.8
LOS	F	F		C	A	C	B	A
Approach Delay		336.4		29.4		21.4		9.7
Approach LOS		F		C		C		A

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 60.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.71	
Intersection Signal Delay: 117.1	Intersection LOS: F
Intersection Capacity Utilization 84.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Station Road & NY27 South Service Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	58	0	0	46	237	26
Future Volume (Veh/h)	58	0	0	46	237	26
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.64	0.64	0.91	0.91
Hourly flow rate (vph)	65	0	0	72	260	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	559					
pX, platoon unblocked						
vC, conflicting volume			65		137	65
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			65		137	65
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		70	97
cM capacity (veh/h)			1550		854	1005

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	65	72	289
Volume Left	0	0	260
Volume Right	0	0	29
cSH	1700	1700	867
Volume to Capacity	0.04	0.04	0.33
Queue Length 95th (ft)	0	0	37
Control Delay (s)	0.0	0.0	11.2
Lane LOS			B
Approach Delay (s)	0.0	0.0	11.2
Approach LOS			B

Intersection Summary			
Average Delay	7.6		
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	34	0	0	26	47	9
Future Volume (Veh/h)	34	0	0	26	47	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	37	0	0	28	51	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					238	
pX, platoon unblocked						
vC, conflicting volume	84	56	61			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	84	56	61			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	100	100			
cM capacity (veh/h)	918	1011	1542			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	37	28	61
Volume Left	37	0	0
Volume Right	0	0	10
cSH	918	1542	1700
Volume to Capacity	0.04	0.00	0.04
Queue Length 95th (ft)	3	0	0
Control Delay (s)	9.1	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.1	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	413	38	0	365	0	0
Future Volume (Veh/h)	413	38	0	365	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	449	41	0	397	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	666			666		
pX, platoon unblocked			0.95		0.95	0.95
vC, conflicting volume			490		648	224
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			365		530	86
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1134		456	910

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2
Volume Total	224	224	41	198	198
Volume Left	0	0	0	0	0
Volume Right	0	0	41	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.13	0.13	0.02	0.12	0.12
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					
Approach Delay (s)	0.0			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	14.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	41	41	542	56	56	543
Future Volume (Veh/h)	41	41	542	56	56	543
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.88	0.92	0.92	0.91
Hourly flow rate (vph)	45	45	616	61	61	597
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			632			
pX, platoon unblocked	0.85	0.85			0.85	
vC, conflicting volume	1366	646			677	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1342	499			534	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	66	91			93	
cM capacity (veh/h)	133	487			881	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	45	45	677	658
Volume Left	45	0	0	61
Volume Right	0	45	61	0
cSH	133	487	1700	881
Volume to Capacity	0.34	0.09	0.40	0.07
Queue Length 95th (ft)	34	8	0	6
Control Delay (s)	45.3	13.1	0.0	1.8
Lane LOS	E	B		A
Approach Delay (s)	29.2		0.0	1.8
Approach LOS	D			

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	59	270	0	0	14
Future Volume (Veh/h)	0	59	270	0	0	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.89	0.89	0.90	0.90	0.92	0.92
Hourly flow rate (vph)	0	66	300	0	0	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		416				
pX, platoon unblocked						
vC, conflicting volume	300				366	300
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	300				366	300
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	1261				634	740

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	66	300	15
Volume Left	0	0	0
Volume Right	0	0	15
cSH	1700	1700	740
Volume to Capacity	0.04	0.18	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.0	10.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	10.0
Approach LOS			A

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	28	56	39	0	0	7
Future Volume (Veh/h)	28	56	39	0	0	7
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.89	0.91	0.92	0.92	0.92
Hourly flow rate (vph)	30	63	43	0	0	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		856				
pX, platoon unblocked						
vC, conflicting volume	43				166	43
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	43				166	43
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				100	99
cM capacity (veh/h)	1566				809	1027

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	93	43	8
Volume Left	30	0	0
Volume Right	0	0	8
cSH	1566	1700	1027
Volume to Capacity	0.02	0.03	0.01
Queue Length 95th (ft)	1	0	1
Control Delay (s)	2.5	0.0	8.5
Lane LOS	A		A
Approach Delay (s)	2.5	0.0	8.5
Approach LOS			A

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	21.2%	ICU Level of Service	A
Analysis Period (min)	15		

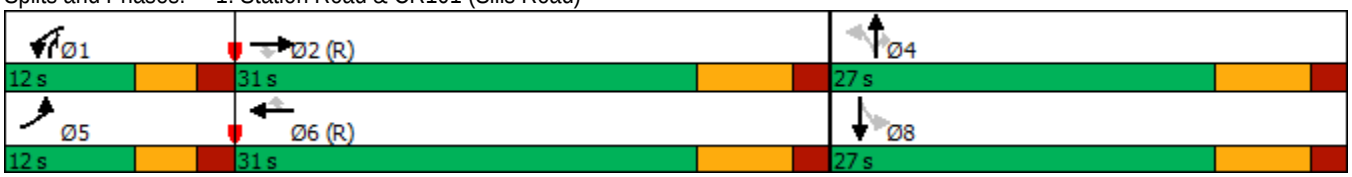
Timings
1: Station Road & CR101 (Sills Road)

07/02/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	128	449	25	161	425	9	15	236	129	4	309
Future Volume (vph)	128	449	25	161	425	9	15	236	129	4	309
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	pm+ov	Perm	NA
Protected Phases	5	2		1	6			4	1		8
Permitted Phases			2			6	4		4	8	
Detector Phase	5	2	2	1	6	6	4	4	1	8	8
Switch Phase											
Minimum Initial (s)	3.0	20.0	20.0	3.0	20.0	20.0	5.0	5.0	3.0	6.0	6.0
Minimum Split (s)	8.2	27.0	27.0	8.2	27.0	27.0	12.0	12.0	8.2	13.0	13.0
Total Split (s)	12.0	31.0	31.0	12.0	31.0	31.0	27.0	27.0	12.0	27.0	27.0
Total Split (%)	17.1%	44.3%	44.3%	17.1%	44.3%	44.3%	38.6%	38.6%	17.1%	38.6%	38.6%
Yellow Time (s)	3.2	5.0	5.0	3.2	5.0	5.0	5.0	5.0	3.2	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	5.2	7.0	7.0	5.2	7.0	7.0	7.0	7.0	5.2		7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
Act Effct Green (s)	6.9	20.0	20.0	7.7	20.8	20.8	23.1	23.1	37.8		23.1
Actuated g/C Ratio	0.10	0.29	0.29	0.11	0.30	0.30	0.33	0.33	0.54		0.33
v/c Ratio	0.75	0.46	0.05	1.05	0.50	0.03	0.08	0.43	0.17		0.82
Control Delay	59.9	22.4	0.2	116.9	22.5	0.1	17.1	20.7	2.2		32.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	59.9	22.4	0.2	116.9	22.5	0.1	17.1	20.7	2.2		32.9
LOS	E	C	A	F	C	A	B	C	A		C
Approach Delay		29.4			47.8			14.3			32.9
Approach LOS		C			D			B			C

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 13 (19%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 33.4	Intersection LOS: C
Intersection Capacity Utilization 70.6%	ICU Level of Service C
Analysis Period (min) 15	

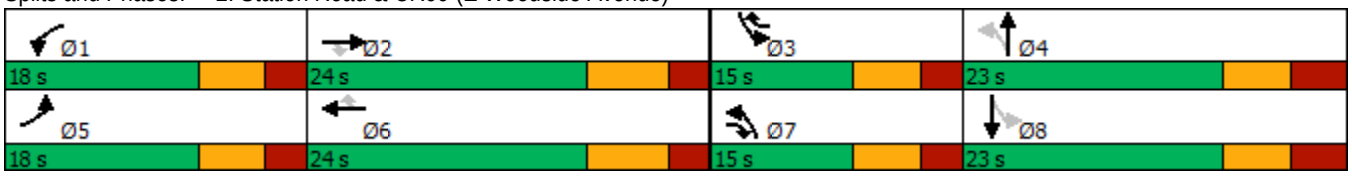
Splits and Phases: 1: Station Road & CR101 (Sills Road)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	33	155	123	67	129	71	114	355	93	387
Future Volume (vph)	33	155	123	67	129	71	114	355	93	387
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases	5	2	7	1	6	3	7	4	3	8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	7	1	6	3	7	4	3	8
Switch Phase										
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	10.0	3.0	10.0
Minimum Split (s)	9.5	17.3	9.5	9.5	17.3	9.5	9.5	17.5	9.5	17.5
Total Split (s)	18.0	24.0	15.0	18.0	24.0	15.0	15.0	23.0	15.0	23.0
Total Split (%)	22.5%	30.0%	18.8%	22.5%	30.0%	18.8%	18.8%	28.8%	18.8%	28.8%
Yellow Time (s)	4.0	4.8	4.0	4.0	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.5	2.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.3	6.5	6.5	7.3	6.5	6.5	7.5	6.5	7.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	None	None	None	None	None
Act Effct Green (s)	7.1	10.4	25.7	8.5	16.9	31.7	26.7	19.3	24.1	15.7
Actuated g/C Ratio	0.10	0.15	0.38	0.13	0.25	0.47	0.39	0.29	0.36	0.23
v/c Ratio	0.21	0.33	0.22	0.38	0.18	0.11	0.46	0.88	0.33	1.03
Control Delay	32.4	29.3	3.8	33.9	22.7	0.9	18.7	49.5	16.0	81.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.4	29.3	3.8	33.9	22.7	0.9	18.7	49.5	16.0	81.7
LOS	C	C	A	C	C	A	B	D	B	F
Approach Delay		19.6			19.7			42.8		70.0
Approach LOS		B			B			D		E

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 67.7	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 42.1	Intersection LOS: D
Intersection Capacity Utilization 64.6%	ICU Level of Service C
Analysis Period (min) 15	

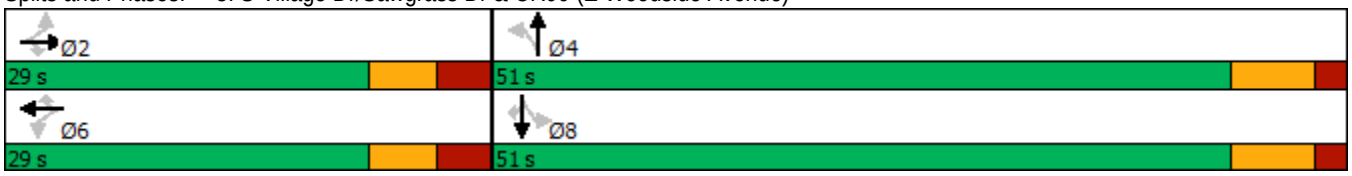
Splits and Phases: 2: Station Road & CR99 (E Woodside Avenue)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	130	158	16	47	141	7	37	9	5	12	179
Future Volume (vph)	130	158	16	47	141	7	37	9	5	12	179
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases		2			6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Detector Phase	2	2	2	6	6	6	4	4	8	8	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	25.3	25.3	25.3	25.3	25.3	25.3	25.0	25.0	25.0	25.0	25.0
Total Split (s)	29.0	29.0	29.0	29.0	29.0	29.0	51.0	51.0	51.0	51.0	51.0
Total Split (%)	36.3%	36.3%	36.3%	36.3%	36.3%	36.3%	63.8%	63.8%	63.8%	63.8%	63.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0	7.0	7.0	7.0
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	Max	Max	Max	Max	Max	Max	None	None	None	None	None
Act Effct Green (s)	23.1	23.1	23.1	23.1	23.1	23.1	7.6	7.6	7.6	7.6	7.6
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.51	0.51	0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.23	0.09	0.02	0.10	0.09	0.01	0.29	0.11	0.03	0.06	0.53
Control Delay	8.0	6.3	0.6	6.9	6.3	0.0	19.2	10.7	15.0	15.2	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	6.3	0.6	6.9	6.3	0.0	19.2	10.7	15.0	15.2	7.4
LOS	A	A	A	A	A	A	B	B	B	B	A
Approach Delay		6.7			6.2			16.1		8.1	
Approach LOS		A			A			B		A	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 45	
Natural Cycle: 55	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 8.0	Intersection LOS: A
Intersection Capacity Utilization 38.1%	ICU Level of Service A
Analysis Period (min) 15	

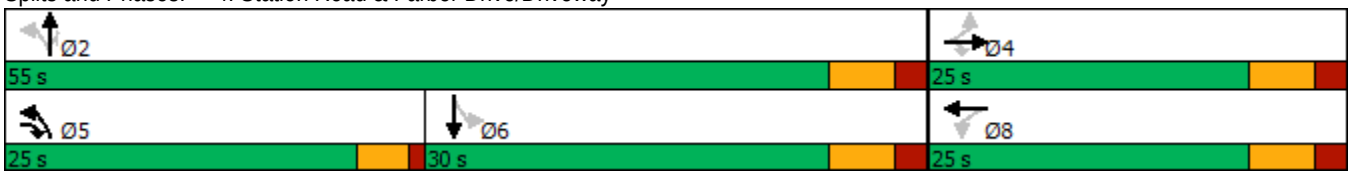
Splits and Phases: 3: S Village Dr/Sawgrass Dr & CR99 (E Woodside Avenue)



Lane Group	EBL	EBT	EBR	NBL	NBT	SBT	Ø8
Lane Configurations							
Traffic Volume (vph)	154	0	374	296	396	453	
Future Volume (vph)	154	0	374	296	396	453	
Turn Type	Perm	NA	pm+ov	pm+pt	NA	NA	
Protected Phases		4	5	5	2	6	8
Permitted Phases	4		4	2			
Detector Phase	4	4	5	5	2	6	
Switch Phase							
Minimum Initial (s)	6.0	6.0	3.0	3.0	10.0	10.0	6.0
Minimum Split (s)	12.0	12.0	9.0	9.0	16.0	16.0	12.0
Total Split (s)	25.0	25.0	25.0	25.0	55.0	30.0	25.0
Total Split (%)	31.3%	31.3%	31.3%	31.3%	68.8%	37.5%	31%
Yellow Time (s)	4.0	4.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	4.0	4.0	6.0	6.0	
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Recall Mode	None	None	None	None	Max	Max	None
Act Effct Green (s)		14.1	34.1	51.1	49.1	31.1	
Actuated g/C Ratio		0.19	0.45	0.68	0.65	0.41	
v/c Ratio		0.67	0.56	0.66	0.38	0.56	
Control Delay		40.9	13.6	13.0	7.8	19.2	
Queue Delay		0.0	0.0	0.0	0.0	0.0	
Total Delay		40.9	13.6	13.0	7.8	19.2	
LOS		D	B	B	A	B	
Approach Delay		21.6			10.1	19.2	
Approach LOS		C			B	B	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 75.2	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 16.5	Intersection LOS: B
Intersection Capacity Utilization 62.7%	ICU Level of Service B
Analysis Period (min) 15	

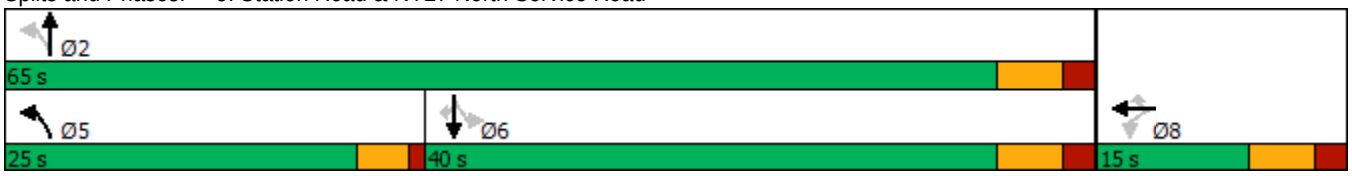
Splits and Phases: 4: Station Road & Farber Drive/Driveway



Lane Group	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	28	123	350	632	4	550	228
Future Volume (vph)	28	123	350	632	4	550	228
Turn Type	NA	Perm	pm+pt	NA	Perm	NA	Perm
Protected Phases	8		5	2		6	
Permitted Phases		8	2		6		6
Detector Phase	8	8	5	2	6	6	6
Switch Phase							
Minimum Initial (s)	6.0	6.0	3.0	10.0	10.0	10.0	10.0
Minimum Split (s)	12.0	12.0	7.0	16.0	16.0	16.0	16.0
Total Split (s)	15.0	15.0	25.0	65.0	40.0	40.0	40.0
Total Split (%)	18.8%	18.8%	31.3%	81.3%	50.0%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes	Yes
Recall Mode	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	9.0	9.0	61.0	59.0	43.3	43.3	43.3
Actuated g/C Ratio	0.11	0.11	0.76	0.74	0.54	0.54	0.54
v/c Ratio	0.93	0.78	0.60	0.50	0.01	0.58	0.25
Control Delay	86.2	64.5	7.3	5.8	10.8	16.3	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.2	64.5	7.3	5.8	10.8	16.3	2.5
LOS	F	E	A	A	B	B	A
Approach Delay	77.0			6.3		12.2	
Approach LOS	E			A		B	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 18.9	Intersection LOS: B
Intersection Capacity Utilization 70.8%	ICU Level of Service C
Analysis Period (min) 15	

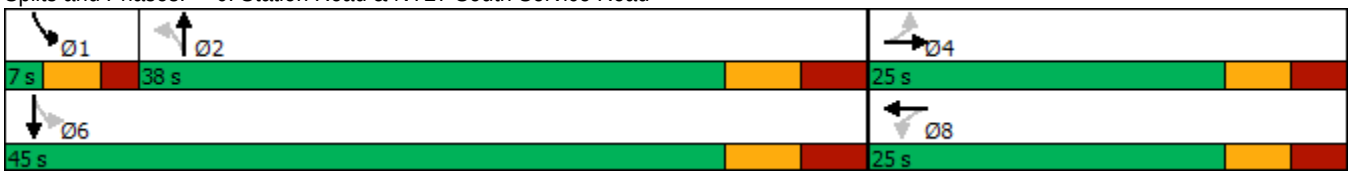
Splits and Phases: 5: Station Road & NY27 North Service Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	338	128	3	0	34	644	132	459
Future Volume (vph)	338	128	3	0	34	644	132	459
Turn Type	Perm	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases		4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	1	6
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	20.0	20.0	1.0	20.0
Minimum Split (s)	12.5	12.5	12.5	12.5	27.5	27.5	6.0	27.5
Total Split (s)	25.0	25.0	25.0	25.0	38.0	38.0	7.0	45.0
Total Split (%)	35.7%	35.7%	35.7%	35.7%	54.3%	54.3%	10.0%	64.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.5	3.5	2.0	3.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	7.5	7.5	5.0	7.5
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)	18.5	18.5		18.5	30.2	30.2	39.7	37.2
Actuated g/C Ratio	0.27	0.27		0.27	0.43	0.43	0.57	0.53
v/c Ratio	1.04	0.98		0.08	0.13	0.97	0.97	0.68
Control Delay	85.4	67.8		0.3	13.3	47.3	85.1	16.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	85.4	67.8		0.3	13.3	47.3	85.1	16.0
LOS	F	E		A	B	D	F	B
Approach Delay		76.0		0.3		45.7		29.2
Approach LOS		E		A		D		C

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 69.7	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 49.7	Intersection LOS: D
Intersection Capacity Utilization 90.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Station Road & NY27 South Service Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	26	0	0	43	268	19
Future Volume (Veh/h)	26	0	0	43	268	19
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.81	0.81	0.88	0.88
Hourly flow rate (vph)	41	0	0	53	305	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	559					
pX, platoon unblocked						
vC, conflicting volume			41		94	41
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			41		94	41
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		66	98
cM capacity (veh/h)			1581		908	1036

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	41	53	327
Volume Left	0	0	305
Volume Right	0	0	22
cSH	1700	1700	916
Volume to Capacity	0.02	0.03	0.36
Queue Length 95th (ft)	0	0	41
Control Delay (s)	0.0	0.0	11.1
Lane LOS			B
Approach Delay (s)	0.0	0.0	11.1
Approach LOS			B

Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	36	0	0	19	57	7
Future Volume (Veh/h)	36	0	0	19	57	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	0	0	21	62	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					238	
pX, platoon unblocked						
vC, conflicting volume	87	66	70			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	87	66	70			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	100	100			
cM capacity (veh/h)	914	998	1531			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	39	21	70
Volume Left	39	0	0
Volume Right	0	0	8
cSH	914	1531	1700
Volume to Capacity	0.04	0.00	0.04
Queue Length 95th (ft)	3	0	0
Control Delay (s)	9.1	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.1	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	13.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	272	30	0	237	0	0
Future Volume (Veh/h)	272	30	0	237	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	296	33	0	258	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	666			666		
pX, platoon unblocked			1.00		1.00	1.00
vC, conflicting volume			329		425	148
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			317		413	135
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1234		564	885

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2
Volume Total	148	148	33	129	129
Volume Left	0	0	0	0	0
Volume Right	0	0	33	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.09	0.09	0.02	0.08	0.08
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					
Approach Delay (s)	0.0			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	10.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	43	43	504	45	45	591
Future Volume (Veh/h)	43	43	504	45	45	591
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.88	0.92	0.92	0.91
Hourly flow rate (vph)	47	47	573	49	49	649
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			632			
pX, platoon unblocked	0.89	0.89			0.89	
vC, conflicting volume	1344	598			622	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1325	483			510	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	67	91			95	
cM capacity (veh/h)	144	518			936	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	47	47	622	698
Volume Left	47	0	0	49
Volume Right	0	47	49	0
cSH	144	518	1700	936
Volume to Capacity	0.33	0.09	0.37	0.05
Queue Length 95th (ft)	33	7	0	4
Control Delay (s)	41.5	12.6	0.0	1.3
Lane LOS	E	B		A
Approach Delay (s)	27.1		0.0	1.3
Approach LOS	D			

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	32	272	0	0	14
Future Volume (Veh/h)	0	32	272	0	0	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.89	0.89	0.90	0.90	0.92	0.92
Hourly flow rate (vph)	0	36	302	0	0	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		416				
pX, platoon unblocked						
vC, conflicting volume	302				338	302
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	302				338	302
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	1259				658	738

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	36	302	15
Volume Left	0	0	0
Volume Right	0	0	15
cSH	1700	1700	738
Volume to Capacity	0.02	0.18	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.0	10.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	10.0
Approach LOS			A

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	22	21	36	0	0	7
Future Volume (Veh/h)	22	21	36	0	0	7
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.89	0.91	0.92	0.92	0.92
Hourly flow rate (vph)	24	24	40	0	0	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		856				
pX, platoon unblocked						
vC, conflicting volume	40				112	40
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	40				112	40
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				100	99
cM capacity (veh/h)	1570				871	1031

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	48	40	8
Volume Left	24	0	0
Volume Right	0	0	8
cSH	1570	1700	1031
Volume to Capacity	0.02	0.02	0.01
Queue Length 95th (ft)	1	0	1
Control Delay (s)	3.7	0.0	8.5
Lane LOS	A		A
Approach Delay (s)	3.7	0.0	8.5
Approach LOS			A

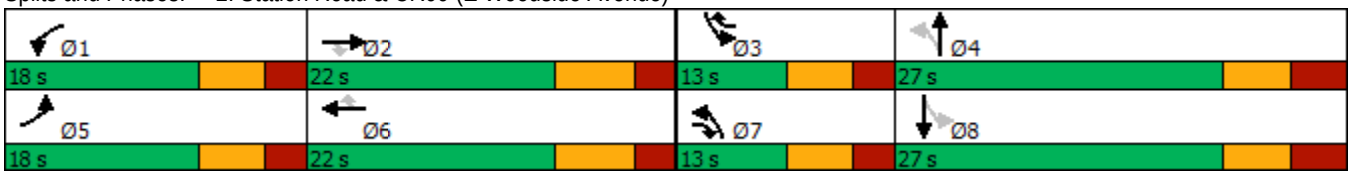
Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	19.0%	ICU Level of Service	A
Analysis Period (min)	15		

Build Capacity Analyses with Mitigation

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	16	170	70	68	216	38	184	309	36	281
Future Volume (vph)	16	170	70	68	216	38	184	309	36	281
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases	5	2	7	1	6	3	7	4	3	8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	7	1	6	3	7	4	3	8
Switch Phase										
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	10.0	3.0	10.0
Minimum Split (s)	9.5	17.3	9.5	9.5	17.3	9.5	9.5	17.5	9.5	17.5
Total Split (s)	18.0	22.0	13.0	18.0	22.0	13.0	13.0	27.0	13.0	27.0
Total Split (%)	22.5%	27.5%	16.3%	22.5%	27.5%	16.3%	16.3%	33.8%	16.3%	33.8%
Yellow Time (s)	4.0	4.8	4.0	4.0	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.5	2.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.3	6.5	6.5	7.3	6.5	6.5	7.5	6.5	7.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	None	None	None	None	None
Act Effct Green (s)	6.6	11.1	25.2	8.8	18.3	31.9	28.8	22.9	26.7	19.5
Actuated g/C Ratio	0.09	0.16	0.35	0.12	0.26	0.45	0.40	0.32	0.38	0.27
v/c Ratio	0.15	0.44	0.16	0.43	0.31	0.06	0.73	0.92	0.19	0.86
Control Delay	34.1	31.4	1.7	37.4	23.9	0.2	33.6	53.3	14.8	47.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	31.4	1.7	37.4	23.9	0.2	33.6	53.3	14.8	47.9
LOS	C	C	A	D	C	A	C	D	B	D
Approach Delay		23.5			24.0			47.2		44.4
Approach LOS		C			C			D		D

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 71.2	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 37.4	Intersection LOS: D
Intersection Capacity Utilization 61.5%	ICU Level of Service B
Analysis Period (min) 15	

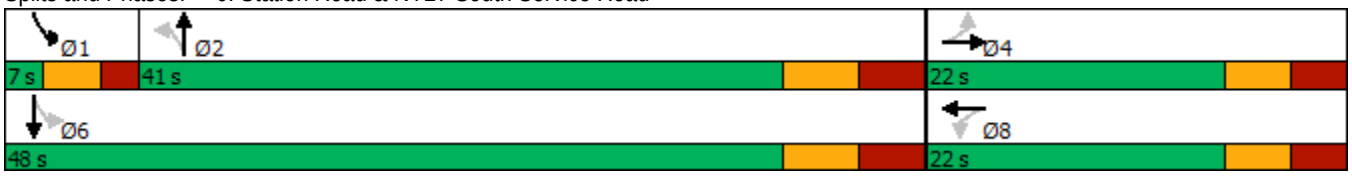
Splits and Phases: 2: Station Road & CR99 (E Woodside Avenue)



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	190	24	0	2	559	87	468
Future Volume (vph)	190	24	0	2	559	87	468
Turn Type	Perm	NA	NA	Perm	NA	pm+pt	NA
Protected Phases		4	8		2	1	6
Permitted Phases	4			2		6	
Detector Phase	4	4	8	2	2	1	6
Switch Phase							
Minimum Initial (s)	6.0	6.0	6.0	20.0	20.0	1.0	20.0
Minimum Split (s)	12.5	12.5	12.5	27.5	27.5	6.0	27.5
Total Split (s)	22.0	22.0	22.0	41.0	41.0	7.0	48.0
Total Split (%)	31.4%	31.4%	31.4%	58.6%	58.6%	10.0%	68.6%
Yellow Time (s)	3.5	3.5	3.5	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.5	3.5	2.0	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	7.5	7.5	5.0	7.5
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	Min	Min	None	Min
Act Effct Green (s)	15.8	15.8	15.8	29.8	29.8	37.6	35.1
Actuated g/C Ratio	0.24	0.24	0.24	0.46	0.46	0.58	0.54
v/c Ratio	0.85	1.14	0.07	0.01	0.89	0.46	0.71
Control Delay	54.5	124.3	0.2	9.5	33.3	12.9	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.5	124.3	0.2	9.5	33.3	12.9	15.9
LOS	D	F	A	A	C	B	B
Approach Delay		95.8	0.2		33.3		15.5
Approach LOS		F	A		C		B

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 65.1	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.14	
Intersection Signal Delay: 45.9	Intersection LOS: D
Intersection Capacity Utilization 77.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Station Road & NY27 South Service Road



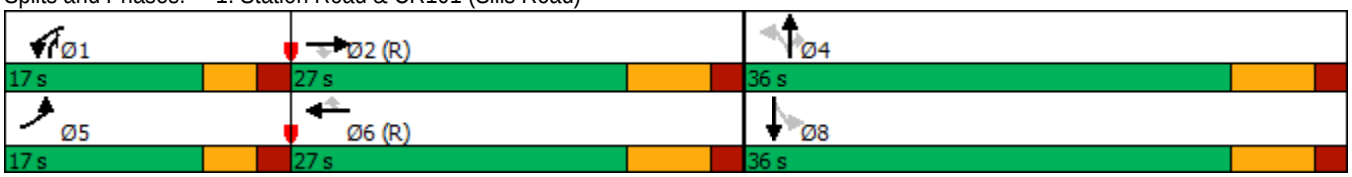
Timings
1: Station Road & CR101 (Sills Road)

07/02/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	171	621	7	143	548	3	11	258	127	8	334
Future Volume (vph)	171	621	7	143	548	3	11	258	127	8	334
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	pm+ov	Perm	NA
Protected Phases	5	2		1	6			4	1		8
Permitted Phases			2			6	4		4	8	
Detector Phase	5	2	2	1	6	6	4	4	1	8	8
Switch Phase											
Minimum Initial (s)	3.0	20.0	20.0	3.0	20.0	20.0	6.0	6.0	3.0	6.0	6.0
Minimum Split (s)	8.2	27.0	27.0	8.2	27.0	27.0	13.0	13.0	8.2	13.0	13.0
Total Split (s)	17.0	27.0	27.0	17.0	27.0	27.0	36.0	36.0	17.0	36.0	36.0
Total Split (%)	21.3%	33.8%	33.8%	21.3%	33.8%	33.8%	45.0%	45.0%	21.3%	45.0%	45.0%
Yellow Time (s)	3.2	5.0	5.0	3.2	5.0	5.0	5.0	5.0	3.2	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	5.2	7.0	7.0	5.2	7.0	7.0	7.0	7.0	5.2		7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
Act Effct Green (s)	11.2	23.1	23.1	10.7	22.7	22.7	27.0	27.0	44.7		27.0
Actuated g/C Ratio	0.14	0.29	0.29	0.13	0.28	0.28	0.34	0.34	0.56		0.34
v/c Ratio	0.74	0.65	0.01	0.68	0.59	0.01	0.07	0.45	0.17		0.90
Control Delay	52.2	29.5	0.0	48.2	28.6	0.0	18.2	22.9	5.0		43.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	52.2	29.5	0.0	48.2	28.6	0.0	18.2	22.9	5.0		43.1
LOS	D	C	A	D	C	A	B	C	A		D
Approach Delay		34.1			32.5			17.1			43.1
Approach LOS		C			C			B			D

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 13 (16%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 32.8	Intersection LOS: C
Intersection Capacity Utilization 78.2%	ICU Level of Service D
Analysis Period (min) 15	

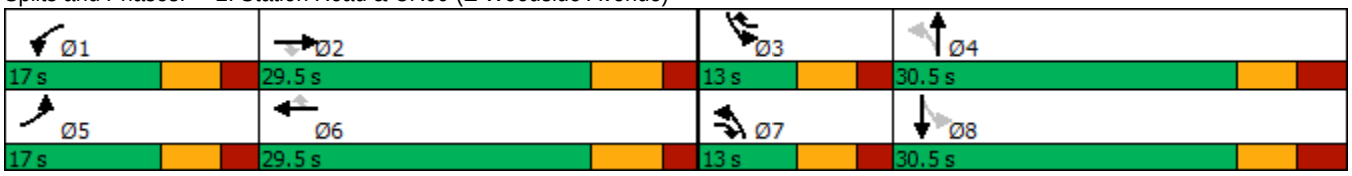
Splits and Phases: 1: Station Road & CR101 (Sills Road)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	36	249	114	113	199	81	90	360	113	363
Future Volume (vph)	36	249	114	113	199	81	90	360	113	363
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases	5	2	7	1	6	3	7	4	3	8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	7	1	6	3	7	4	3	8
Switch Phase										
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	10.0	3.0	10.0
Minimum Split (s)	15.5	17.3	9.5	9.5	17.3	9.5	9.5	17.5	9.5	17.5
Total Split (s)	17.0	29.5	13.0	17.0	29.5	13.0	13.0	30.5	13.0	30.5
Total Split (%)	18.9%	32.8%	14.4%	18.9%	32.8%	14.4%	14.4%	33.9%	14.4%	33.9%
Yellow Time (s)	4.0	4.8	4.0	4.0	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.5	2.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.3	6.5	6.5	7.3	6.5	6.5	7.5	6.5	7.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	None	None	None	None	None
Act Effct Green (s)	7.3	11.5	25.2	10.1	19.4	33.1	30.4	23.0	30.6	23.1
Actuated g/C Ratio	0.09	0.15	0.32	0.13	0.25	0.42	0.39	0.29	0.39	0.29
v/c Ratio	0.25	0.51	0.22	0.69	0.30	0.15	0.36	0.89	0.46	0.82
Control Delay	37.4	34.9	4.4	51.0	27.6	2.9	16.8	48.2	18.9	41.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	34.9	4.4	51.0	27.6	2.9	16.8	48.2	18.9	41.2
LOS	D	C	A	D	C	A	B	D	B	D
Approach Delay		26.4			29.2			43.0		36.4
Approach LOS		C			C			D		D

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 78.9	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 34.3	Intersection LOS: C
Intersection Capacity Utilization 68.4%	ICU Level of Service C
Analysis Period (min) 15	

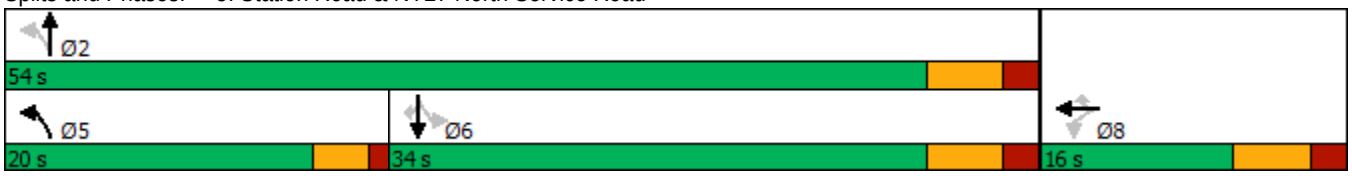
Splits and Phases: 2: Station Road & CR99 (E Woodside Avenue)



Lane Group	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	17	108	346	541	3	499	193
Future Volume (vph)	17	108	346	541	3	499	193
Turn Type	NA	Perm	pm+pt	NA	Perm	NA	Perm
Protected Phases	8		5	2		6	
Permitted Phases		8	2		6		6
Detector Phase	8	8	5	2	6	6	6
Switch Phase							
Minimum Initial (s)	6.0	6.0	3.0	10.0	10.0	10.0	10.0
Minimum Split (s)	12.0	12.0	7.0	16.0	16.0	16.0	16.0
Total Split (s)	16.0	16.0	20.0	54.0	34.0	34.0	34.0
Total Split (%)	22.9%	22.9%	28.6%	77.1%	48.6%	48.6%	48.6%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes	Yes
Recall Mode	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	9.8	9.8	50.0	48.0	31.6	31.6	31.6
Actuated g/C Ratio	0.14	0.14	0.72	0.69	0.45	0.45	0.45
v/c Ratio	0.80	0.56	0.71	0.52	0.01	0.71	0.28
Control Delay	54.4	39.3	13.6	7.1	12.7	23.0	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.4	39.3	13.6	7.1	12.7	23.0	3.2
LOS	D	D	B	A	B	C	A
Approach Delay	48.7			9.4		17.5	
Approach LOS	D			A		B	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 69.8	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 18.2	Intersection LOS: B
Intersection Capacity Utilization 68.5%	ICU Level of Service C
Analysis Period (min) 15	

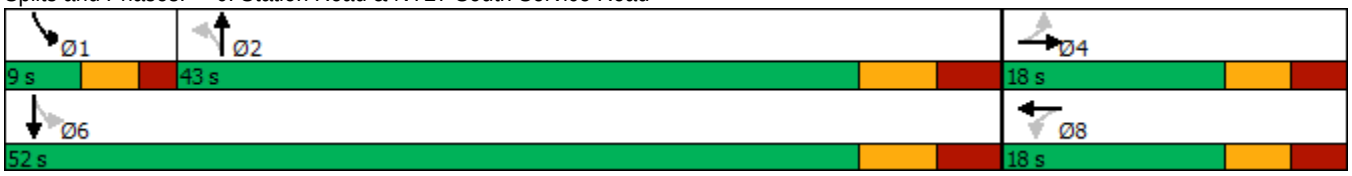
Splits and Phases: 5: Station Road & NY27 North Service Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	285	89	5	2	27	631	139	469
Future Volume (vph)	285	89	5	2	27	631	139	469
Turn Type	Perm	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases		4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	1	6
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	20.0	20.0	1.0	20.0
Minimum Split (s)	12.5	12.5	12.5	12.5	27.5	27.5	6.0	27.5
Total Split (s)	18.0	18.0	18.0	18.0	43.0	43.0	9.0	52.0
Total Split (%)	25.7%	25.7%	25.7%	25.7%	61.4%	61.4%	12.9%	74.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.5	3.5	2.0	3.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	7.5	7.5	5.0	7.5
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)	11.7	11.7		11.7	32.4	32.4	41.7	39.2
Actuated g/C Ratio	0.18	0.18		0.18	0.50	0.50	0.64	0.60
v/c Ratio	1.27	1.39		0.25	0.08	0.89	0.61	0.53
Control Delay	177.3	223.5		17.9	9.6	30.3	16.1	9.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	177.3	223.5		17.9	9.6	30.3	16.1	9.2
LOS	F	F		B	A	C	B	A
Approach Delay		203.5		17.9		29.5		10.6
Approach LOS		F		B		C		B

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 65.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.39	
Intersection Signal Delay: 78.2	Intersection LOS: E
Intersection Capacity Utilization 84.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Station Road & NY27 South Service Road



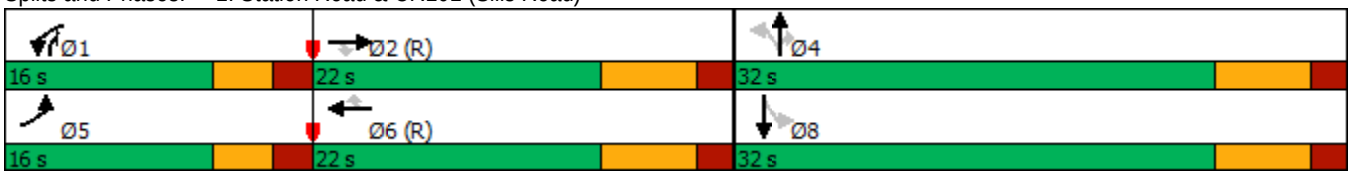
Timings
1: Station Road & CR101 (Sills Road)

07/02/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	128	449	25	161	425	9	15	236	129	4	309
Future Volume (vph)	128	449	25	161	425	9	15	236	129	4	309
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	pm+ov	Perm	NA
Protected Phases	5	2		1	6			4	1		8
Permitted Phases			2			6	4		4	8	
Detector Phase	5	2	2	1	6	6	4	4	1	8	8
Switch Phase											
Minimum Initial (s)	3.0	20.0	20.0	3.0	20.0	20.0	5.0	5.0	3.0	6.0	6.0
Minimum Split (s)	8.2	27.0	27.0	8.2	27.0	27.0	12.0	12.0	8.2	13.0	13.0
Total Split (s)	16.0	22.0	22.0	16.0	22.0	22.0	32.0	32.0	16.0	32.0	32.0
Total Split (%)	22.9%	31.4%	31.4%	22.9%	31.4%	31.4%	45.7%	45.7%	22.9%	45.7%	45.7%
Yellow Time (s)	3.2	5.0	5.0	3.2	5.0	5.0	5.0	5.0	3.2	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	5.2	7.0	7.0	5.2	7.0	7.0	7.0	7.0	5.2		7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
Act Effct Green (s)	9.4	17.8	17.8	10.8	21.5	21.5	22.2	22.2	40.0		22.2
Actuated g/C Ratio	0.13	0.25	0.25	0.15	0.31	0.31	0.32	0.32	0.57		0.32
v/c Ratio	0.55	0.52	0.06	0.75	0.48	0.03	0.09	0.45	0.16		0.85
Control Delay	37.0	26.0	0.2	47.6	24.2	0.1	16.7	21.0	4.0		34.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	37.0	26.0	0.2	47.6	24.2	0.1	16.7	21.0	4.0		34.8
LOS	D	C	A	D	C	A	B	C	A		C
Approach Delay		27.3			30.2			15.1			34.8
Approach LOS		C			C			B			C

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 13 (19%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 27.7	Intersection LOS: C
Intersection Capacity Utilization 70.6%	ICU Level of Service C
Analysis Period (min) 15	

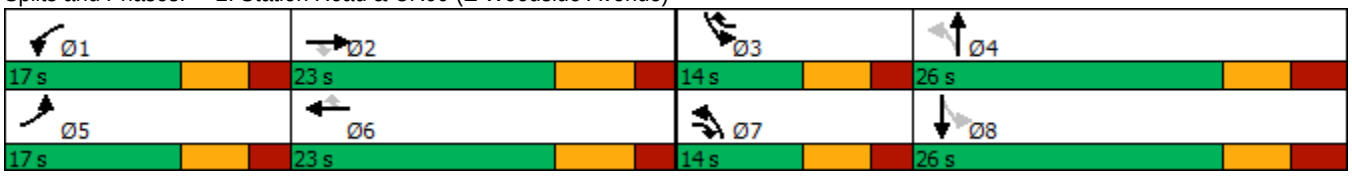
Splits and Phases: 1: Station Road & CR101 (Sills Road)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	33	155	123	67	129	71	114	355	93	387
Future Volume (vph)	33	155	123	67	129	71	114	355	93	387
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases	5	2	7	1	6	3	7	4	3	8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	7	1	6	3	7	4	3	8
Switch Phase										
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	10.0	3.0	10.0
Minimum Split (s)	9.5	17.3	9.5	9.5	17.3	9.5	9.5	17.5	9.5	17.5
Total Split (s)	17.0	23.0	14.0	17.0	23.0	14.0	14.0	26.0	14.0	26.0
Total Split (%)	21.3%	28.8%	17.5%	21.3%	28.8%	17.5%	17.5%	32.5%	17.5%	32.5%
Yellow Time (s)	4.0	4.8	4.0	4.0	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.5	2.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.3	6.5	6.5	7.3	6.5	6.5	7.5	6.5	7.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	None	None	None	None	None
Act Effct Green (s)	7.1	10.4	25.1	8.4	14.2	28.6	28.8	22.1	26.7	18.7
Actuated g/C Ratio	0.10	0.15	0.36	0.12	0.20	0.41	0.41	0.32	0.38	0.27
v/c Ratio	0.21	0.34	0.23	0.40	0.22	0.12	0.45	0.80	0.31	0.89
Control Delay	33.4	30.4	4.1	35.8	26.3	1.0	17.8	39.2	15.0	49.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	30.4	4.1	35.8	26.3	1.0	17.8	39.2	15.0	49.7
LOS	C	C	A	D	C	A	B	D	B	D
Approach Delay		20.3			21.9			34.5		43.5
Approach LOS		C			C			C		D

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 70	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 32.1	Intersection LOS: C
Intersection Capacity Utilization 64.6%	ICU Level of Service C
Analysis Period (min) 15	

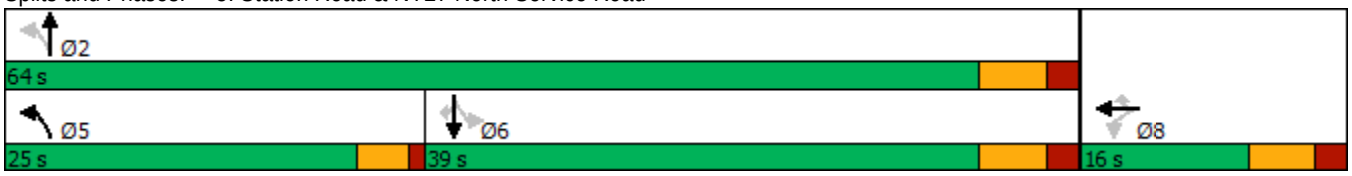
Splits and Phases: 2: Station Road & CR99 (E Woodside Avenue)



Lane Group	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	28	123	350	632	4	550	228
Future Volume (vph)	28	123	350	632	4	550	228
Turn Type	NA	Perm	pm+pt	NA	Perm	NA	Perm
Protected Phases	8		5	2		6	
Permitted Phases		8	2		6		6
Detector Phase	8	8	5	2	6	6	6
Switch Phase							
Minimum Initial (s)	6.0	6.0	3.0	10.0	10.0	10.0	10.0
Minimum Split (s)	12.0	12.0	7.0	16.0	16.0	16.0	16.0
Total Split (s)	16.0	16.0	25.0	64.0	39.0	39.0	39.0
Total Split (%)	20.0%	20.0%	31.3%	80.0%	48.8%	48.8%	48.8%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes	Yes
Recall Mode	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	10.0	10.0	60.0	58.0	41.7	41.7	41.7
Actuated g/C Ratio	0.12	0.12	0.75	0.72	0.52	0.52	0.52
v/c Ratio	0.84	0.70	0.61	0.50	0.01	0.60	0.26
Control Delay	67.0	54.5	8.0	6.3	11.8	17.8	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.0	54.5	8.0	6.3	11.8	17.8	2.7
LOS	E	D	A	A	B	B	A
Approach Delay	61.7			6.9		13.4	
Approach LOS	E			A		B	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 17.4	Intersection LOS: B
Intersection Capacity Utilization 70.8%	ICU Level of Service C
Analysis Period (min) 15	

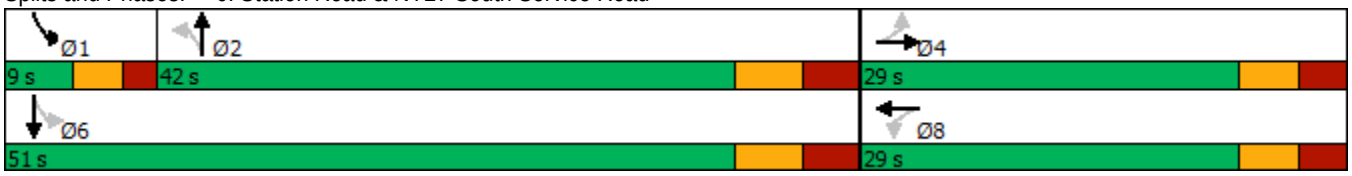
Splits and Phases: 5: Station Road & NY27 North Service Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	338	128	3	0	34	644	132	459
Future Volume (vph)	338	128	3	0	34	644	132	459
Turn Type	Perm	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases		4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	1	6
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	20.0	20.0	1.0	20.0
Minimum Split (s)	12.5	12.5	12.5	12.5	27.5	27.5	6.0	27.5
Total Split (s)	29.0	29.0	29.0	29.0	42.0	42.0	9.0	51.0
Total Split (%)	36.3%	36.3%	36.3%	36.3%	52.5%	52.5%	11.3%	63.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.5	3.5	2.0	3.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	7.5	7.5	5.0	7.5
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)	22.5	22.5		22.5	34.5	34.5	46.0	43.5
Actuated g/C Ratio	0.28	0.28		0.28	0.43	0.43	0.58	0.54
v/c Ratio	0.97	0.93		0.07	0.13	0.98	0.86	0.67
Control Delay	71.0	57.3		0.2	15.2	51.3	54.3	17.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	71.0	57.3		0.2	15.2	51.3	54.3	17.0
LOS	E	E		A	B	D	D	B
Approach Delay		63.7		0.2		49.7		24.1
Approach LOS		E		A		D		C

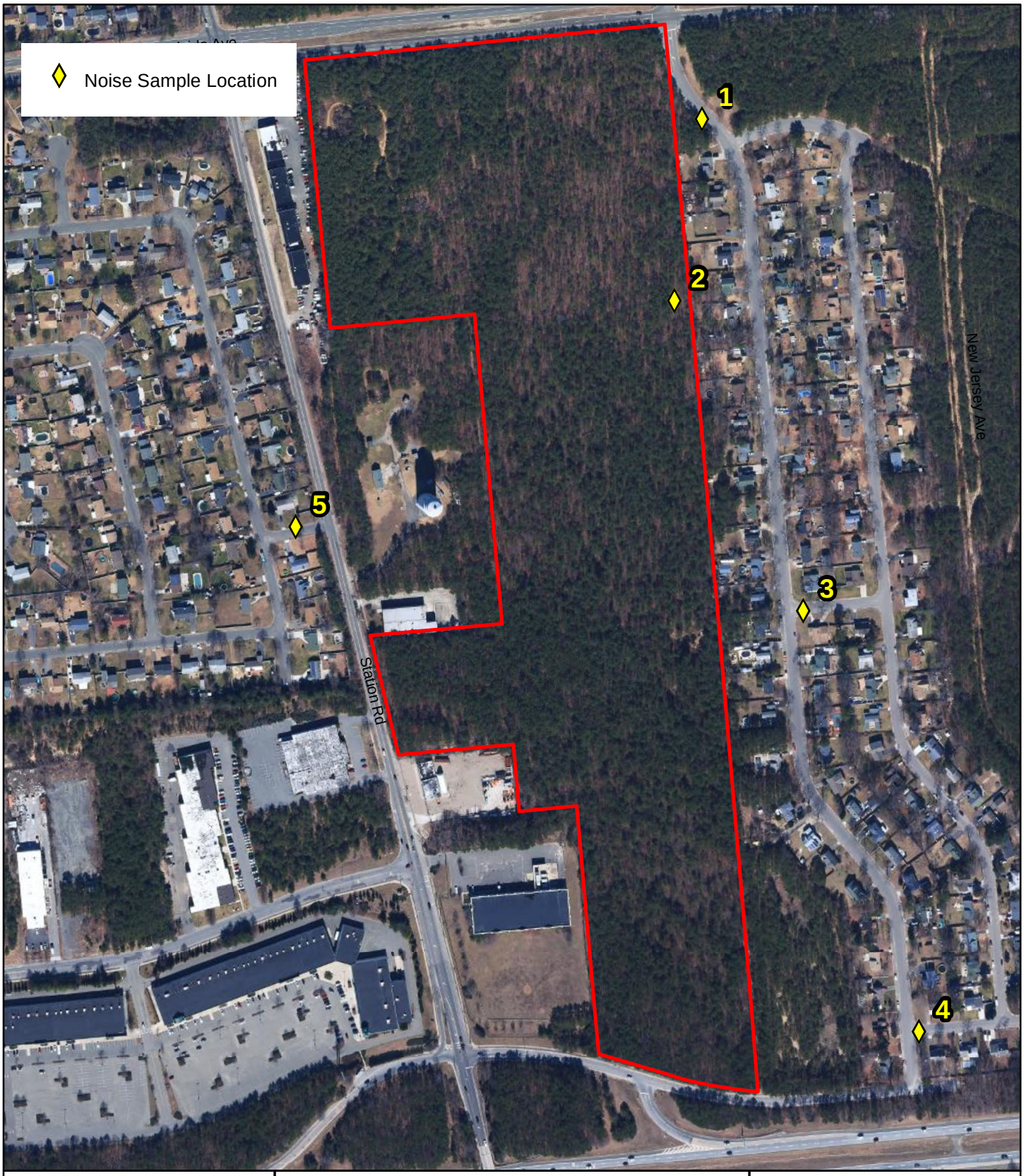
Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 45.2	Intersection LOS: D
Intersection Capacity Utilization 90.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Station Road & NY27 South Service Road



APPENDIX M

NOISE MONITORING LOCATION MAP AND NOISE ANALYSIS DATA SHEETS



NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

NOISE STUDY LOCATION MAP

Source: NYS Orthophotography, 2016; NPV
Scale: 1 inch = 400 feet

N

Crest Town Center
Bellport

Draft EIS

NOISE SURVEY DATA SHEET

STATION 1

Date: 6/22/18

Time: 7:00 AM

Interval: 10 seconds

Location: 50' N. of S. Village Drive/Horizon intsctn

Weather: 64 degrees and overcast

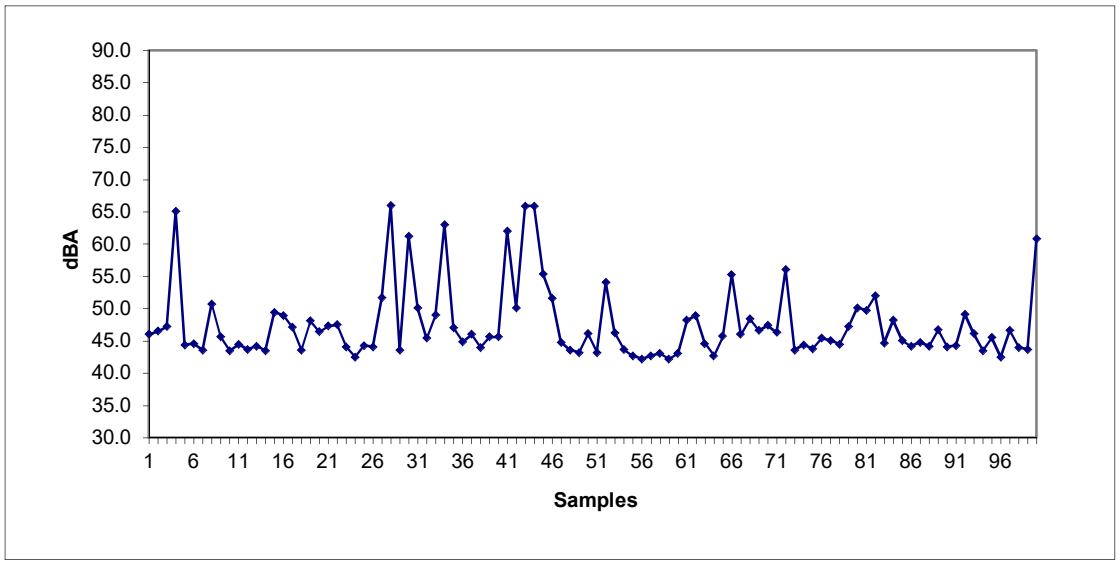
Description: Approximate location of proposed development entrance

Field Notes:

South Village Drive has an intermittent flow of traffic. Measurements during cars passing in range of 50 - 59 noticeable change when no cars passing (values between 42.5 and 45.6)

1	46.0		**18**	43.6		**35**	47.0	c	**51**	43.2		**68**	48.4	c	**85**	45.1	
2	46.5		**19**	48.1	c	**36**	44.9		**52**	54.1	c	**69**	46.6		**86**	44.2	
3	47.2		**20**	46.4		**37**	46.0	c	**53**	46.2	c	**70**	47.4	c	**87**	44.8	
4	65.1	c	**21**	47.3		**38**	44.0		**54**	43.7		**71**	46.3	b	**88**	44.2	
5	44.4		**22**	47.5		**39**	45.6		**55**	42.7		**72**	56.1	b	**89**	46.7	c
6	44.6		**23**	44.1		**40**	45.6		**56**	42.2		**73**	43.6		**90**	44.1	
7	43.6		**24**	42.5		**41**	62.0	c	**57**	42.7		**74**	44.4		**91**	44.3	
8	50.7	c	**25**	44.3	c	**42**	50.1	c	**58**	43.1		**75**	43.8		**92**	49.1	d
9	45.6		**26**	44.1	c	**43**	65.9	c	**59**	42.2		**76**	45.4		**93**	46.1	
10	43.5		**27**	51.7	c	**44**	65.9	c	**60**	43.1		**77**	45.1		**94**	43.5	
11	44.5		**28**	66.0	c	**45**	55.4	c	**61**	48.2	c	**78**	44.5		**95**	45.5	
12	43.7		**29**	43.6		**46**	51.6		**62**	48.9	c	**79**	47.2	t	**96**	42.5	
13	44.2		**30**	61.2	tk	**47**	44.8		**63**	44.6		**80**	50.1	t	**97**	46.6	c
14	43.5		**31**	50.1	c	**48**	43.6		**64**	42.7		**81**	49.7	t	**98**	44.0	
15	49.4	c	**32**	45.4		**49**	43.2		**65**	45.7	c	**82**	52.0	t	**99**	43.7	
16	48.9	c	**33**	49.0	tk	**50**	46.1		**66**	55.3	c	**83**	44.7		**100**	60.8	t
17	47.1		**34**	63.0	tk				**67**	46.0	c	**84**	48.2	c	**Leq:**	**54.2**	

a: aircraft c: car(s) tk: truck d: dog nc: no cars mc: motorcycle
b: bus



Maximum Value: 66.0
Minimum Value: 42.2

NOISE SURVEY DATA SHEET

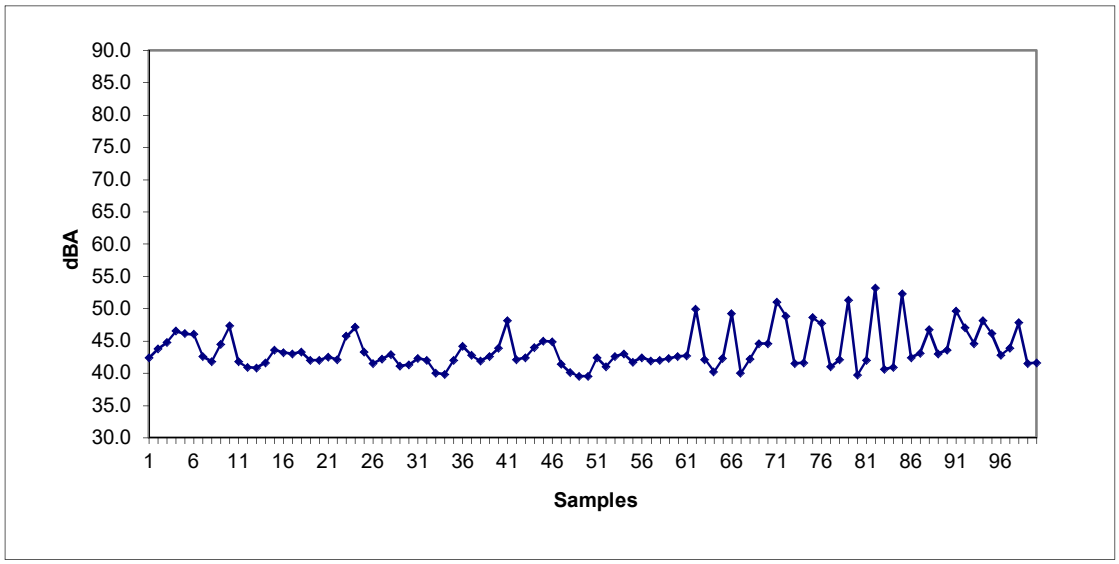
STATION 2

Date: 6/22/18
Time: 7:45 AM
Interval: 10 seconds
Location: 50' frm bckyrd of 18 S. Village Dr.
Weather: 65 degrees and overcast
Description: Approximately 10' from property line

Field Notes:
A few particularly close bird calls
Occasional passing car on S. Village Drive

1	42.4		**18**	43.3		**35**	42.0		**51**	42.4		**68**	42.2		**85**	52.3	br
2	43.8	br	**19**	42.0		**36**	44.2		**52**	41.0		**69**	44.6	c	**86**	42.4	
3	44.8		**20**	42.0		**37**	42.8		**53**	42.6		**70**	44.6	c	**87**	43.1	
4	46.5	c	**21**	42.5		**38**	41.9		**54**	43.0		**71**	51.0	br	**88**	46.7	
5	46.1	c	**22**	42.1		**39**	42.6		**55**	41.7		**72**	48.8	br	**89**	43.0	
6	46.0	c	**23**	45.7	tk	**40**	43.9	br	**56**	42.4		**73**	41.5		**90**	43.6	
7	42.6		**24**	47.1	tk	**41**	48.1	br	**57**	41.9		**74**	41.6		**91**	49.6	br
8	41.8		**25**	43.3		**42**	42.1		**58**	42.0		**75**	48.6	br	**92**	47.0	br
9	44.5	br	**26**	41.5		**43**	42.4		**59**	42.3		**76**	47.7	br	**93**	44.6	
10	47.3	br	**27**	42.2		**44**	44.0		**60**	42.6		**77**	41.0		**94**	48.1	br
11	41.8		**28**	42.9		**45**	45.0	c	**61**	42.7		**78**	42.1		**95**	46.1	br
12	40.9		**29**	41.1		**46**	44.9	c	**62**	49.9	br	**79**	51.3	br	**96**	42.8	
13	40.8		**30**	41.3		**47**	41.4		**63**	42.1		**80**	39.7		**97**	43.9	
14	41.6		**31**	42.3		**48**	40.1		**64**	40.2		**81**	42.0		**98**	47.8	br
15	43.6		**32**	42.0		**49**	39.5		**65**	42.3		**82**	53.2	br	**99**	41.5	
16	43.2		**33**	40.0		**50**	39.5		**66**	49.2	br	**83**	40.6		**100**	41.6	
17	43.0		**34**	39.8					**67**	40.0		**84**	40.9		**Leq:**	**44.9**	

a: aircraft c: car(s) tk: truck d: dog nc: no cars mc: motorcycle
b: bus br: bird



Maximum Value: 53.2
Minimum Value: 39.5

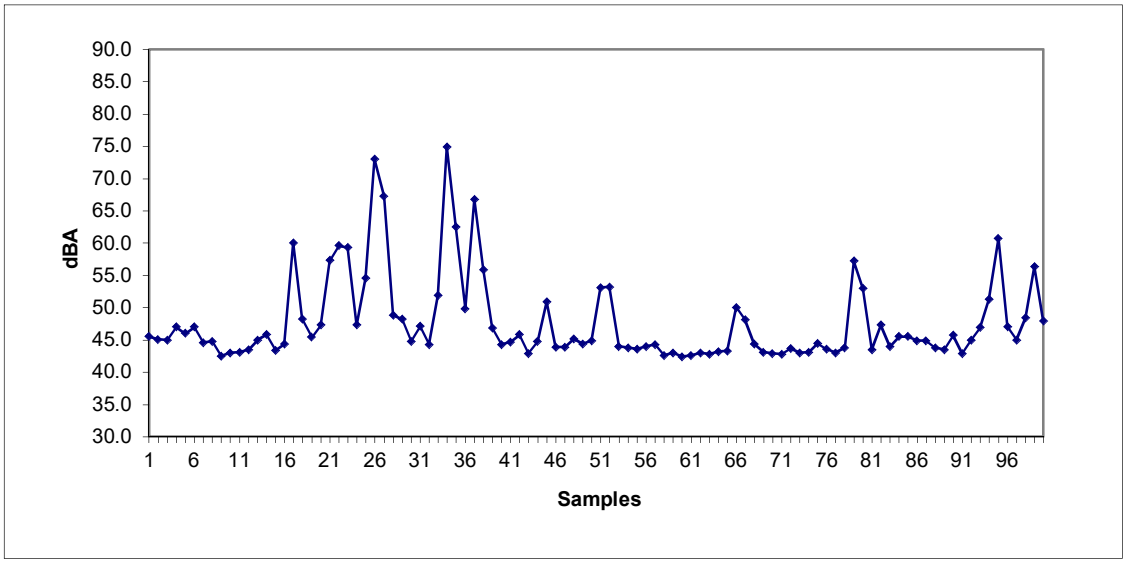
NOISE SURVEY DATA SHEET

STATION 3

Date:	6/22/18	**Field Notes:**	
Time:	8:30 AM	Light house construction approx. 400' N	
Interval:	10 seconds	Occasional passing traffic on S. Village Drive	
Location:	Corner of S. Village Drive and Horizon Ln		
Weather:	66 degrees and overcast		
Description:	In residential neighborhood, approx. 200' from property line		

1	45.5		**18**	48.2	c	**35**	62.5	b	**51**	53.1	c	**68**	44.4		**85**	45.5	
2	45.1		**19**	45.4	c	**36**	49.8	c	**52**	53.2	c	**69**	43.1		**86**	44.9	
3	45.0		**20**	47.3	c	**37**	66.8	c	**53**	44.0		**70**	42.9		**87**	44.9	
4	47.0	cn	**21**	57.3	c	**38**	55.9	c	**54**	43.8		**71**	42.8		**88**	43.8	
5	46.0	cn	**22**	59.6	c	**39**	46.8		**55**	43.6		**72**	43.7		**89**	43.5	
6	47.0	cn	**23**	59.3	c	**40**	44.3		**56**	44.0		**73**	43.0		**90**	45.7	
7	44.6		**24**	47.3		**41**	44.7		**57**	44.3		**74**	43.1		**91**	42.9	
8	44.8		**25**	54.6	p	**42**	45.8	cn	**58**	42.6		**75**	44.5	br	**92**	45.0	br
9	42.5		**26**	73.0	tr	**43**	42.9		**59**	43.0		**76**	43.6		**93**	46.9	
10	43.0		**27**	67.3	c	**44**	44.8		**60**	42.4		**77**	43.0		**94**	51.3	c
11	43.1		**28**	48.8	c	**45**	50.9	bs	**61**	42.6		**78**	43.8		**95**	60.7	c
12	43.5		**29**	48.2		**46**	43.9		**62**	43.0		**79**	57.2	c	**96**	47.0	c
13	45.0		**30**	44.8		**47**	43.9		**63**	42.8		**80**	53.0		**97**	45.0	
14	45.8	br:	**31**	47.1		**48**	45.2	b	**64**	43.2		**81**	43.5		**98**	48.4	c
15	43.4	br:	**32**	44.3		**49**	44.4		**65**	43.3		**82**	47.3	br	**99**	56.4	c
16	44.4		**33**	51.9	c	**50**	44.9		**66**	50.0	c	**83**	44.0		**100**	47.9	c
17	60.0	c:	**34**	74.9	b				**67**	48.1	c	**84**	45.5		**Leq:**	**58.6**	

a: aircraft c: car(s) tk: truck d: dog nc: no cars mc: motorcycle
b: bus br: bird cn: construction p: pedestrian



Maximum Value:	74.9
Minimum Value:	42.4

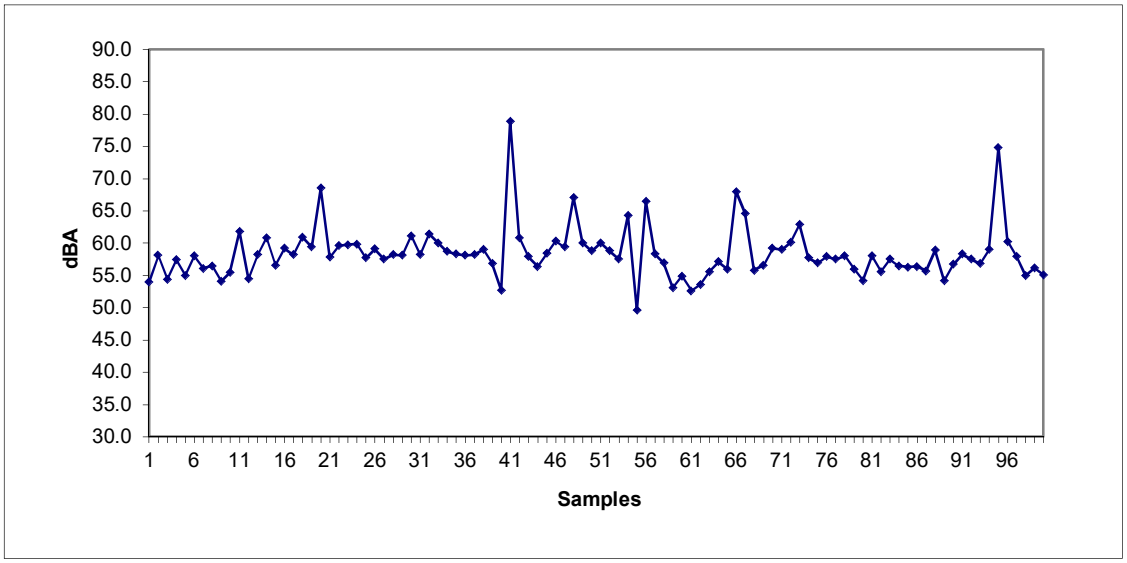
NOISE SURVEY DATA SHEET

STATION 4

Date:	6/22/18	**Field Notes:**	
Time:	9:00 AM	Ambient highway noise with occasional truck	
Interval:	10 seconds	Local traffic at the stop sign	
Location:	Corner of S. Village Drive and Sunburst Ln		
Weather:	67 degrees and partially cloudy		
Description:	In residential neighborhood, approx. 500' from property line		

1	54.0		**18**	60.9	tr	**35**	58.3		**51**	60.0		**68**	55.8		**85**	56.3	
2	58.1		**19**	59.4		**36**	58.1		**52**	58.8		**69**	56.6		**86**	56.4	
3	54.4		**20**	68.5	c	**37**	58.2		**53**	57.5		**70**	59.2		**87**	55.7	
4	57.4		**21**	57.8		**38**	59.0		**54**	64.3	c	**71**	59.0		**88**	58.9	
5	55.0		**22**	59.6		**39**	56.8		**55**	49.6	t	**72**	60.1	c	**89**	54.2	
6	58.0		**23**	59.7		**40**	52.7		**56**	66.5	c	**73**	62.9	c	**90**	56.7	
7	56.1		**24**	59.8		**41**	78.9	tr	**57**	58.3		**74**	57.7		**91**	58.3	
8	56.5		**25**	57.7		**42**	60.8		**58**	56.9		**75**	56.9		**92**	57.5	
9	54.1		**26**	59.1		**43**	57.9		**59**	53.1		**76**	57.9		**93**	56.8	
10	55.5		**27**	57.5		**44**	56.4		**60**	54.9		**77**	57.5		**94**	59.0	t
11	61.8	tr	**28**	58.2		**45**	58.4		**61**	52.6		**78**	58.0		**95**	74.8	t
12	54.5		**29**	58.1		**46**	60.3	tr	**62**	53.6		**79**	56.0		**96**	60.2	c
13	58.2	tr	**30**	61.1	tr	**47**	59.4		**63**	55.6		**80**	54.2		**97**	57.9	
14	60.8	tr	**31**	58.2		**48**	67.1	c	**64**	57.1		**81**	58.0	c	**98**	55.0	
15	56.6		**32**	61.4	tr	**49**	60.0		**65**	56.0		**82**	55.6		**99**	56.2	
16	59.2	tr	**33**	60.0	tr	**50**	58.8		**66**	68.0	c	**83**	57.5		**100**	55.1	
17	58.2		**34**	58.7					**67**	64.6	c	**84**	56.5		**Leq:**	**62.9**	

a: aircraft c: car(s) tk: truck d: dog nc: no cars mc: motorcycle
b: bus br: bird cn: construction p: pedestrian



Maximum Value:	78.9
Minimum Value:	49.6

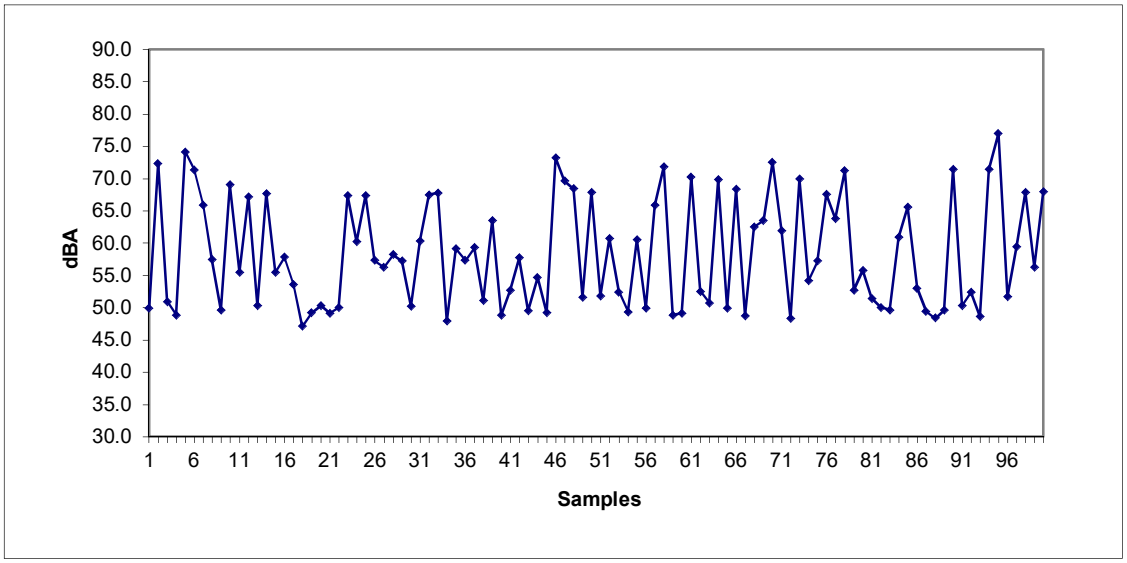
NOISE SURVEY DATA SHEET

STATION 5

Date:	6/22/18	**Field Notes:**	
Time:	9:30 AM	Periodic heavy traffic along Station Road	
Interval:	10 seconds	Local traffic at the stop sign	
Location:	20' E of Station Rd. on Hollow St.		
Weather:	68 degrees and partially cloudy		
Description:	In residential neighborhood, approx. 500' from property line		

1	49.9		**18**	47.1		**35**	59.1	c	**51**	51.8		**68**	62.5	x	**85**	65.6	x
2	72.3	x	**19**	49.2		**36**	57.3		**52**	60.7	x	**69**	63.5	c	**86**	53.0	
3	50.9		**20**	50.3		**37**	59.3	x	**53**	52.4		**70**	72.5	x	**87**	49.4	
4	48.8		**21**	49.1		**38**	51.1		**54**	49.3		**71**	61.9	x	**88**	48.4	
5	74.1	x	**22**	50.0		**39**	63.5	x	**55**	60.5		**72**	48.3		**89**	49.6	
6	71.3	x	**23**	67.4		**40**	48.8		**56**	49.9	x	**73**	69.9	x	**90**	71.4	x
7	65.9	x	**24**	60.2		**41**	52.7		**57**	65.9	x	**74**	54.2		**91**	50.3	
8	57.4	x	**25**	67.4	c	**42**	57.7	c	**58**	71.8	x	**75**	57.2		**92**	52.4	
9	49.6		**26**	57.3		**43**	49.5		**59**	48.8		**76**	67.6	x	**93**	48.6	
10	69.0	x	**27**	56.3		**44**	54.7		**60**	49.1		**77**	63.8		**94**	71.4	x
11	55.5		**28**	58.2		**45**	49.2		**61**	70.2	x	**78**	71.2	x	**95**	77.0	x
12	67.2	x	**29**	57.2		**46**	73.2	x	**62**	52.5		**79**	52.7		**96**	51.7	
13	50.3		**30**	50.2		**47**	69.6	x	**63**	50.7		**80**	55.8		**97**	59.4	
14	67.7	x	**31**	60.3	c	**48**	68.4	x	**64**	69.8	x	**81**	51.4		**98**	67.9	x
15	55.5		**32**	67.5	c	**49**	51.6		**65**	49.9		**82**	50.0		**99**	56.3	c
16	57.8		**33**	67.8	x	**50**	67.9	x	**66**	68.3	x	**83**	49.6		**100**	68.0	x
17	53.6		**34**	47.9					**67**	48.7		**84**	60.9	c	**Leq:**	**65.6**	

a:	aircraft	c:	car(s)	tk:	truck	d:	dog	nc:	no cars	mc:	motorcycle
b:	bus	br:	bird	cn:	construction	p:	pedestrian	x:	multiple cars		



Maximum Value:	77.0
Minimum Value:	47.1

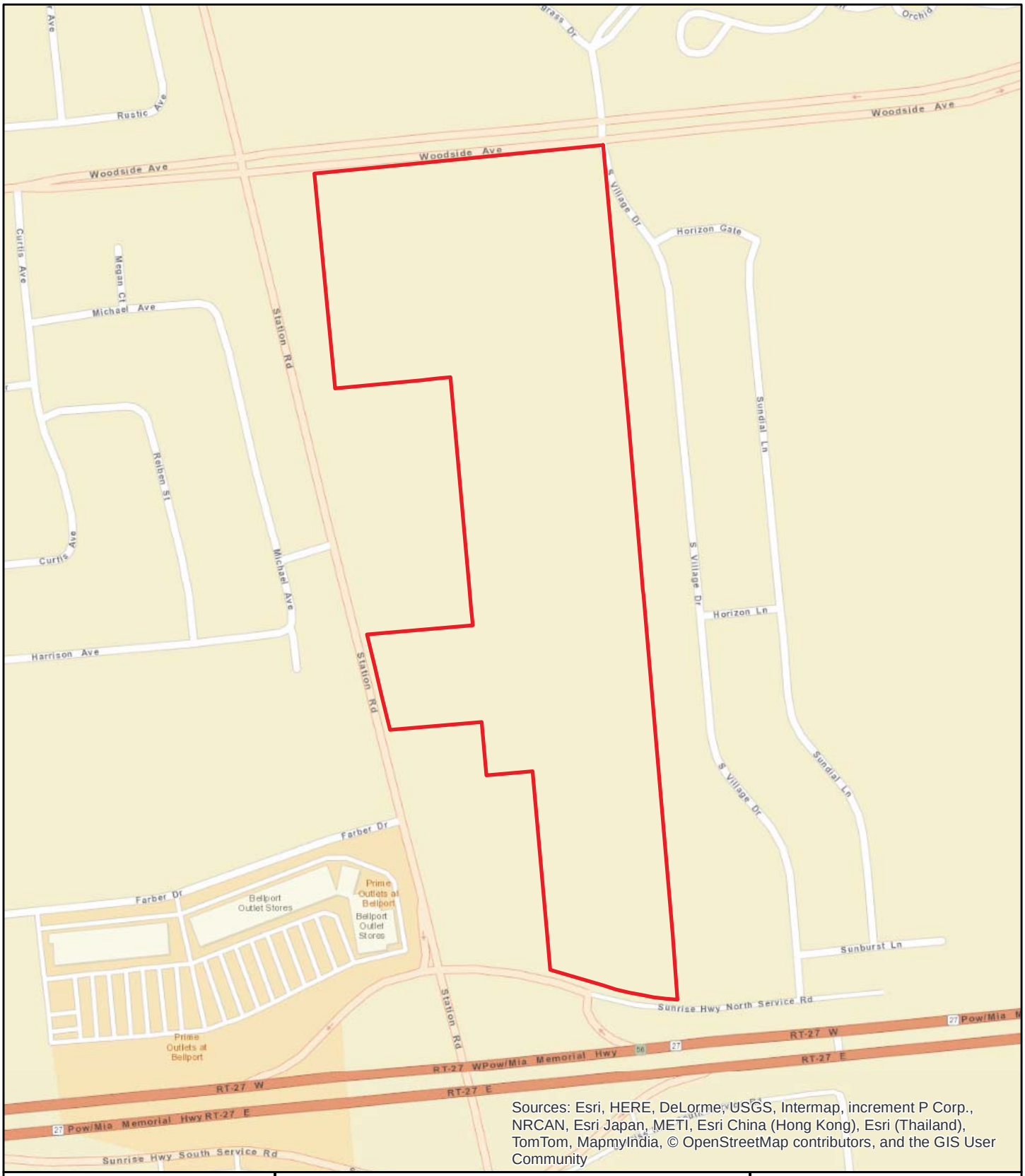
Sound Level Attenuation Worksheet
Analysis of Sound Levels at Nearest Residential Property Lines (and within neighborhood)

STATION	Parameter / Source	Source Noise Level (dBA)	Radius 1 (feet)	Radius to apply if R1 < 15' (feet) *	Distance between the source and receptor (feet)	Sound level absent additional attenuation (accounts for attenuation due to inverse square law) (dBA) **	Attenuation for vegetation (5 dBA per 100' width of dense vegetation) (dBA)	Adjusted Source Level (dBA)	Lowest Ambient Source Level (dBA)	Combined Noise Level (of (Adj/10 + Amb/10) (dBA)	Net Increase (dBA)
1	Lawn mower - diesel engine	82.0	3	15	120	63.9	5	58.9	54.2	**60.2**	6.0
1	Vehicle entering site (assumes 2 vehicles)	65.7	25	25	140	50.7	5	45.7	54.2	**54.8**	0.6
2	Lawn mower - diesel engine	82.0	3	15	120	63.9	2	61.9	44.0	**62.0**	18.0
2	Vehicle driving on site (assumes 1 at minimum setback in turnaround)	62.7	25	25	90	51.6	2	49.6	44.0	**50.6**	6.6
3	Lawn mower - diesel engine	82.0	3	15	300	56.0	4.5	51.5	58.6	**59.4**	0.8
3	Vehicles driving on site (assumes 3 at min setback)	67.5	25	25	350	44.5	4.5	40.0	58.6	**58.7**	0.1
4	Lawn mower - diesel engine	82.0	3	15	200	59.5	2	57.5	62.9	**64.0**	1.1
4	Vehicle driving on site (assumes 3 at min setback)	67.5	25	25	220	48.6	0	48.6	62.9	**63.1**	0.2
5	Lawn mower - diesel engine	82.0	3	15	80	67.5	4.5	63.0	65.6	**67.5**	1.9

* Radius 1 replacement value. It is noted that the laws of the inverse square law apply at a distance of at least 15' away from the source - therefore 15' must be assumed (otherwise the drop off level assumptions for attenuation with distance will be exaggerated).

** Calculated using the following formula: SP2 = SP1 - 20 *(log Radius 2/Radius 1) Where SP is sound pressure level, Radius 1 is the distance from the source and Radius 2 is the distance of the receptor or property line in this example (except when the Radius 1 is less than 15, when a distance of 15' must be assumed as noted above).

FIGURES



Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

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FIGURE 1-1
LOCATION MAP

Source: ESRI Web Mapping Service

Scale: 1 inch = 500 feet

N

Crest Town Center Bellport

Draft EIS

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FIGURE 1-2
EXISTING CONDITIONS

Source: NYS Orthophotos, 2016
Scale: 1 inch = 500 feet

N

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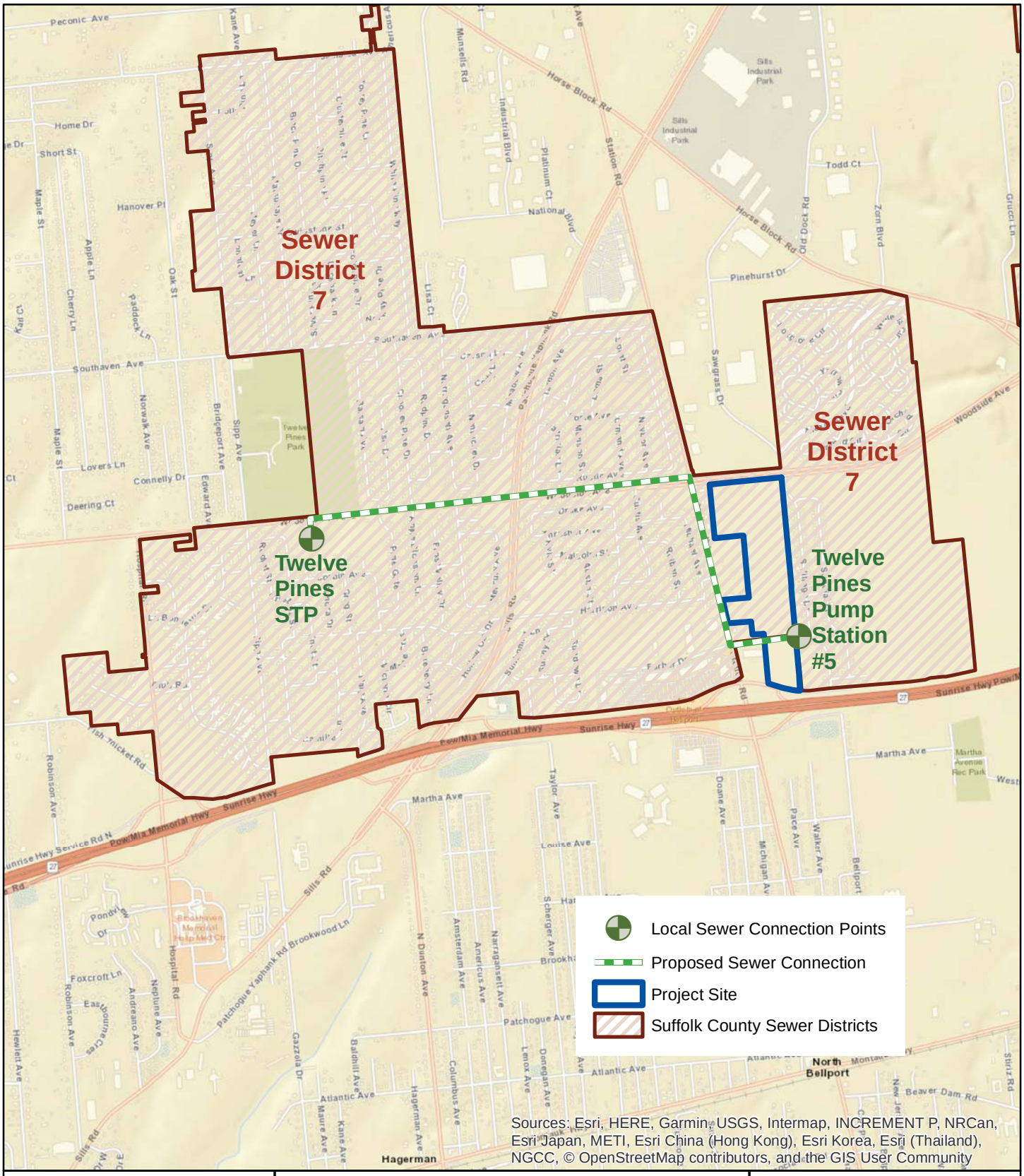

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FIGURE 1-3
SEWER DISTRICT CONNECTION MAP

Source: ESRI Web Mapping Service, USGS Scientific Investigations Map 3326, 2013 data
Scale: 1 inch = 2,000 feet

N

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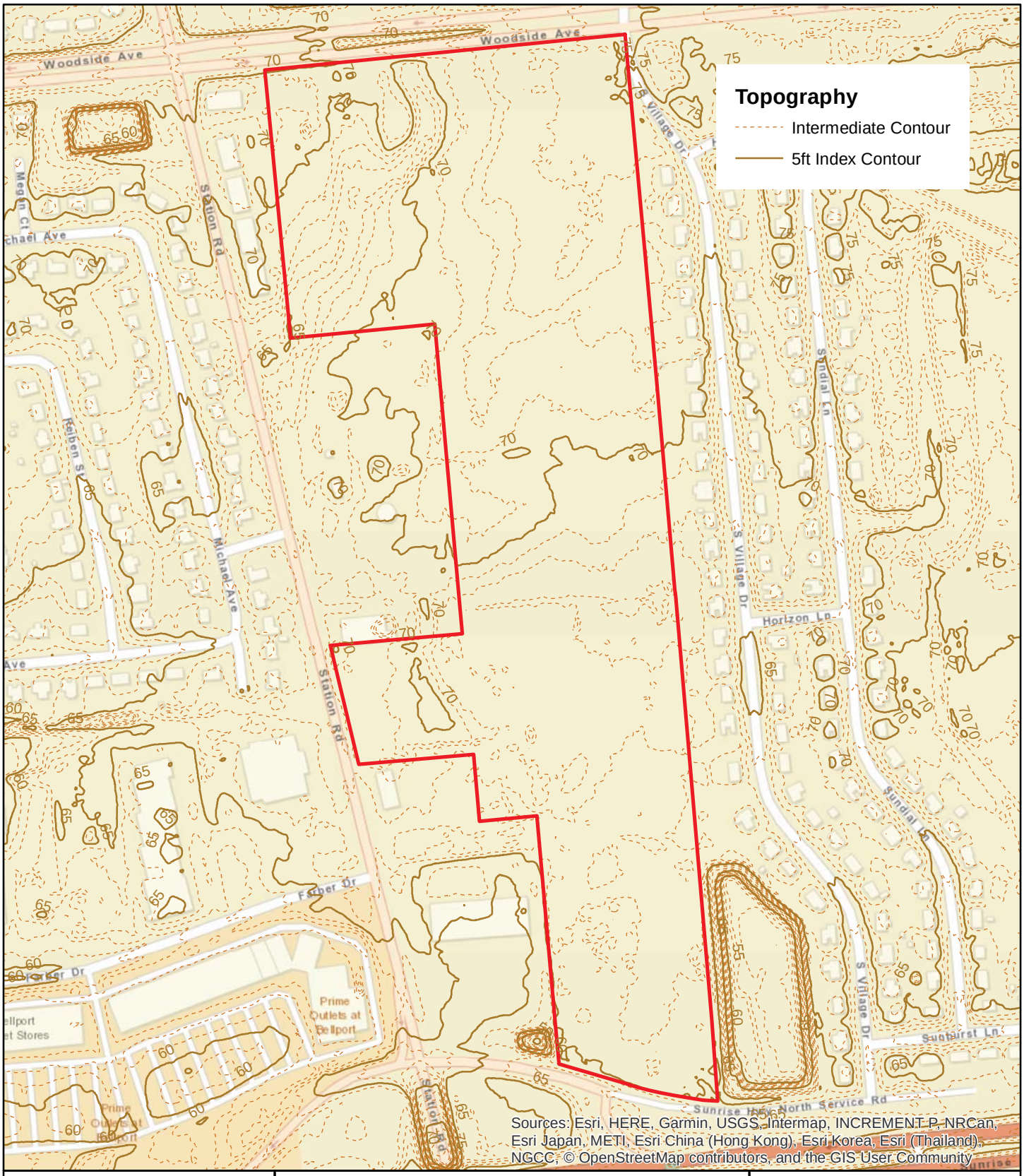

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FIGURE 2-1
TOPOGRAPHY MAP

Source: ESRS wms; Topo from FEMA Lidar, 2006

Scale: 1 inch = 400 feet

N

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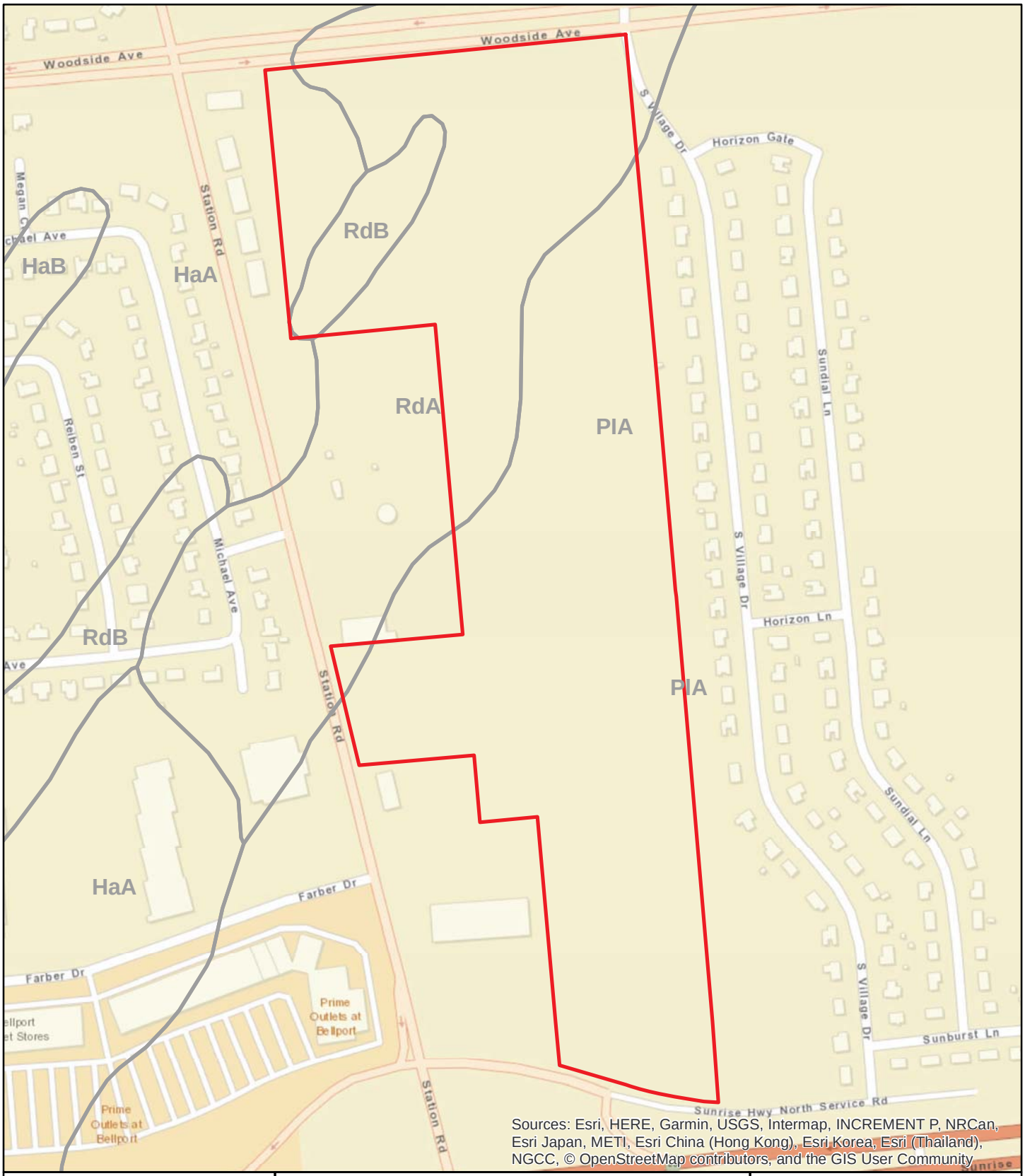

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FIGURE 2-2
SOIL MAP

Source: ESRI Web Mapping Service, NRCS Soils Suffolk County, NY
Scale: 1 inch = 400 feet

N

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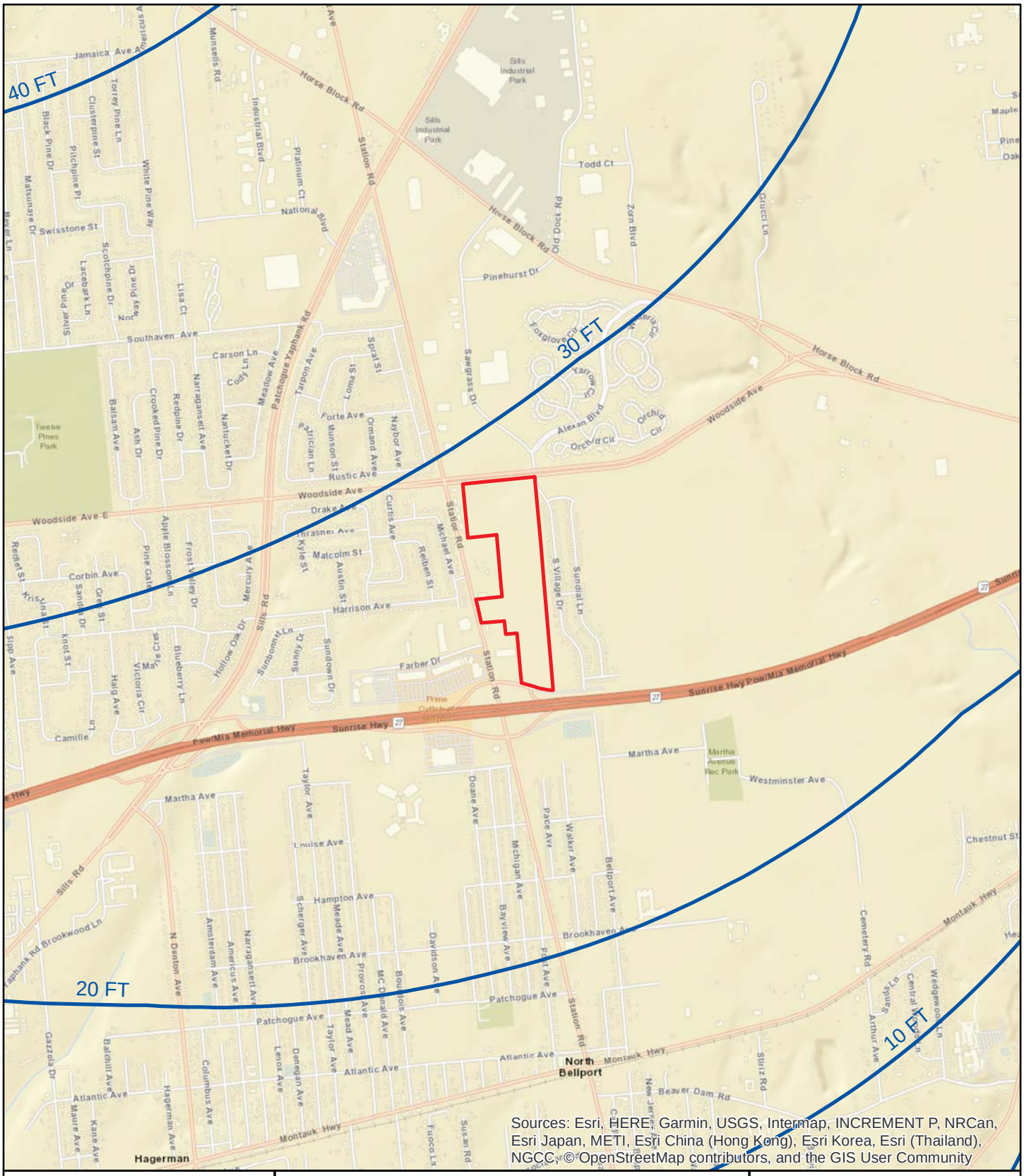

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FIGURE 2-3
WATER TABLE CONTOUR MAP

Source: ESRI Web Mapping Service, USGS Scientific Investigations Map 3326, 2013 data
Scale: 1 inch = 2,000 feet

N

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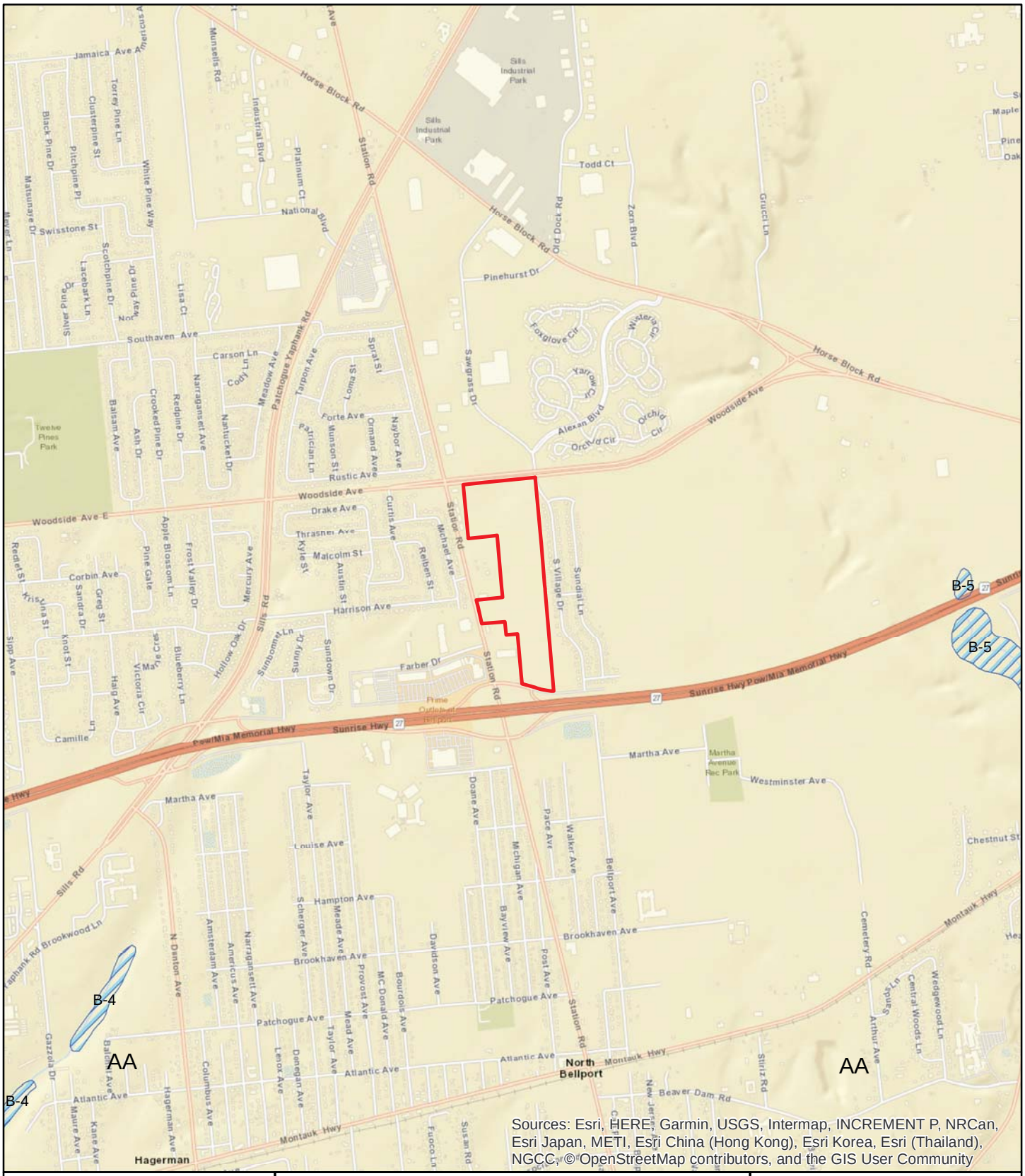

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FIGURE 2-4
NYSDEC
WETLANDS MAP

Source: ESRI Web Mapping Service, NYSDEC Freshwater Wetlands Maps
Scale: 1 inch = 2,000 feet

N

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FIGURE 2-5
NATIONAL WETLANDS INVENTORY MAP

Source: ESRI Web Mapping Service, National Wetlands Inventory Map (NWI, USF&WService)
Scale: 1 inch = 1,000 feet

N

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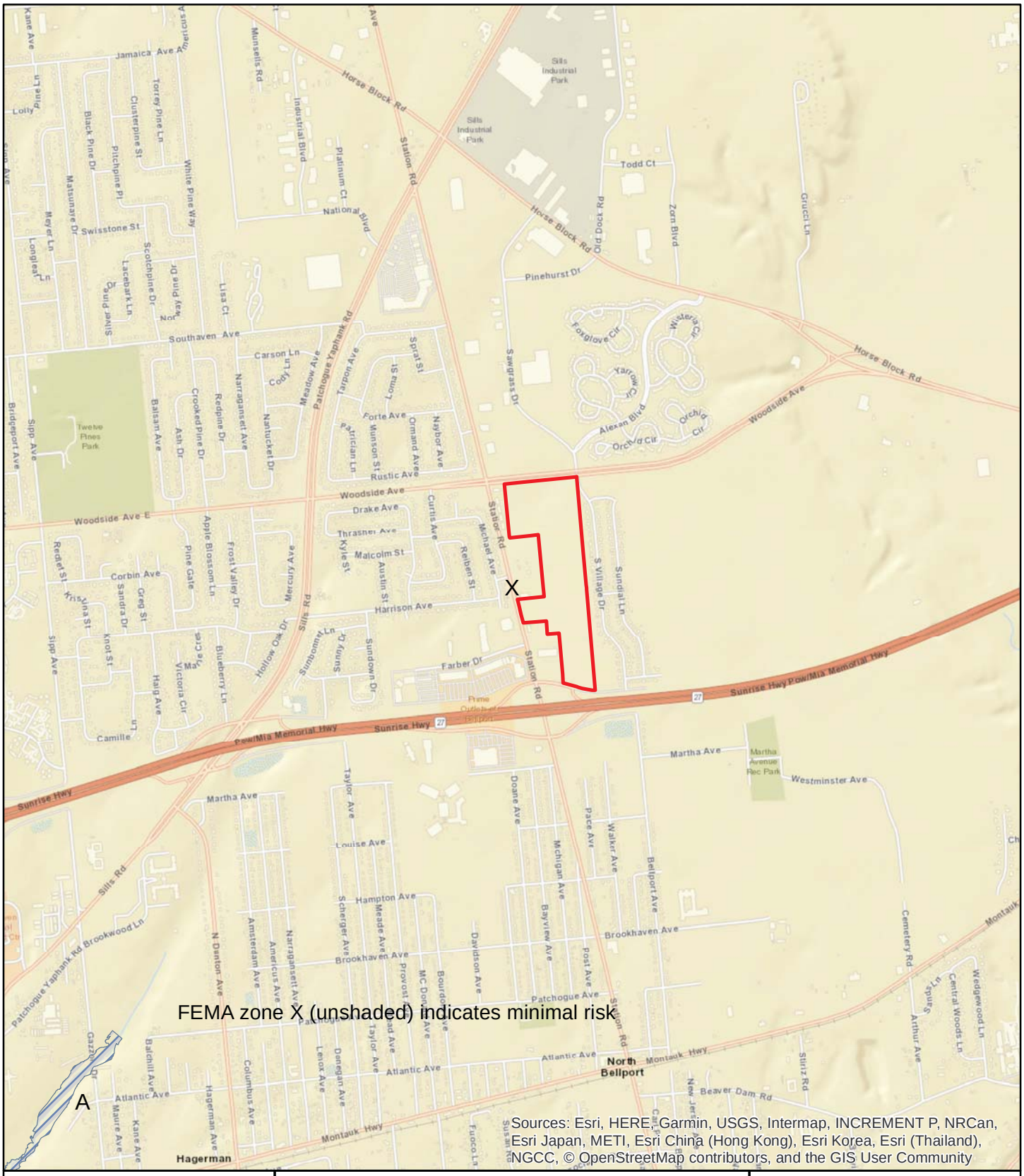

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FIGURE 2-6
FEMA FLOOD MAP

Source: ESRI Web Mapping Service, FEMA

Scale: 1 inch = 2,000 feet

N

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Draft EIS

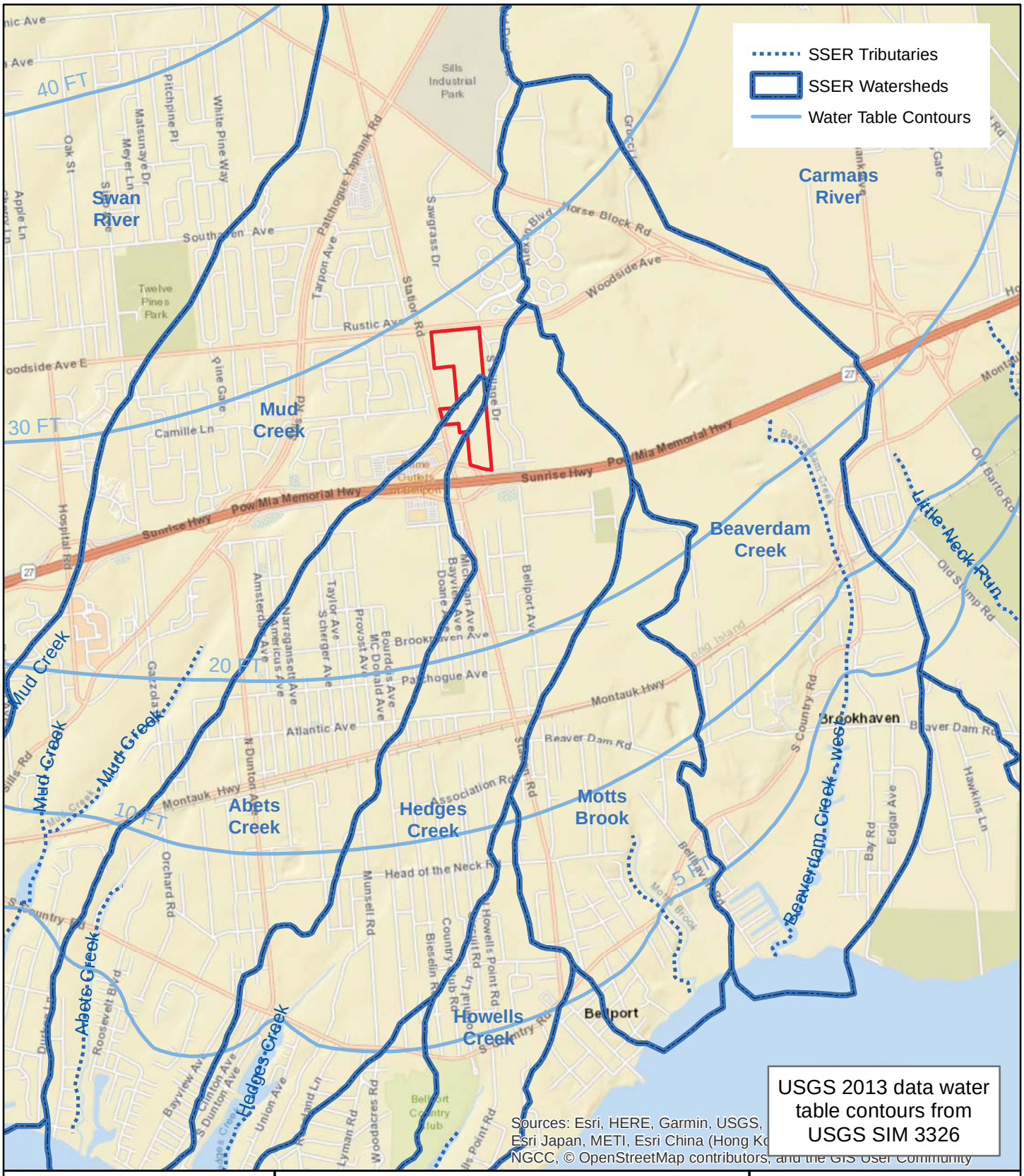

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FIGURE 2-6
SURFACE WATER SUBWATERSHEDS MAP

Source: ESRI Web Mapping Service, South Shore Estuary Reserve SubWatersheds, 2010
Scale: 1 inch = 3,000 feet

N

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Approximate location of project site

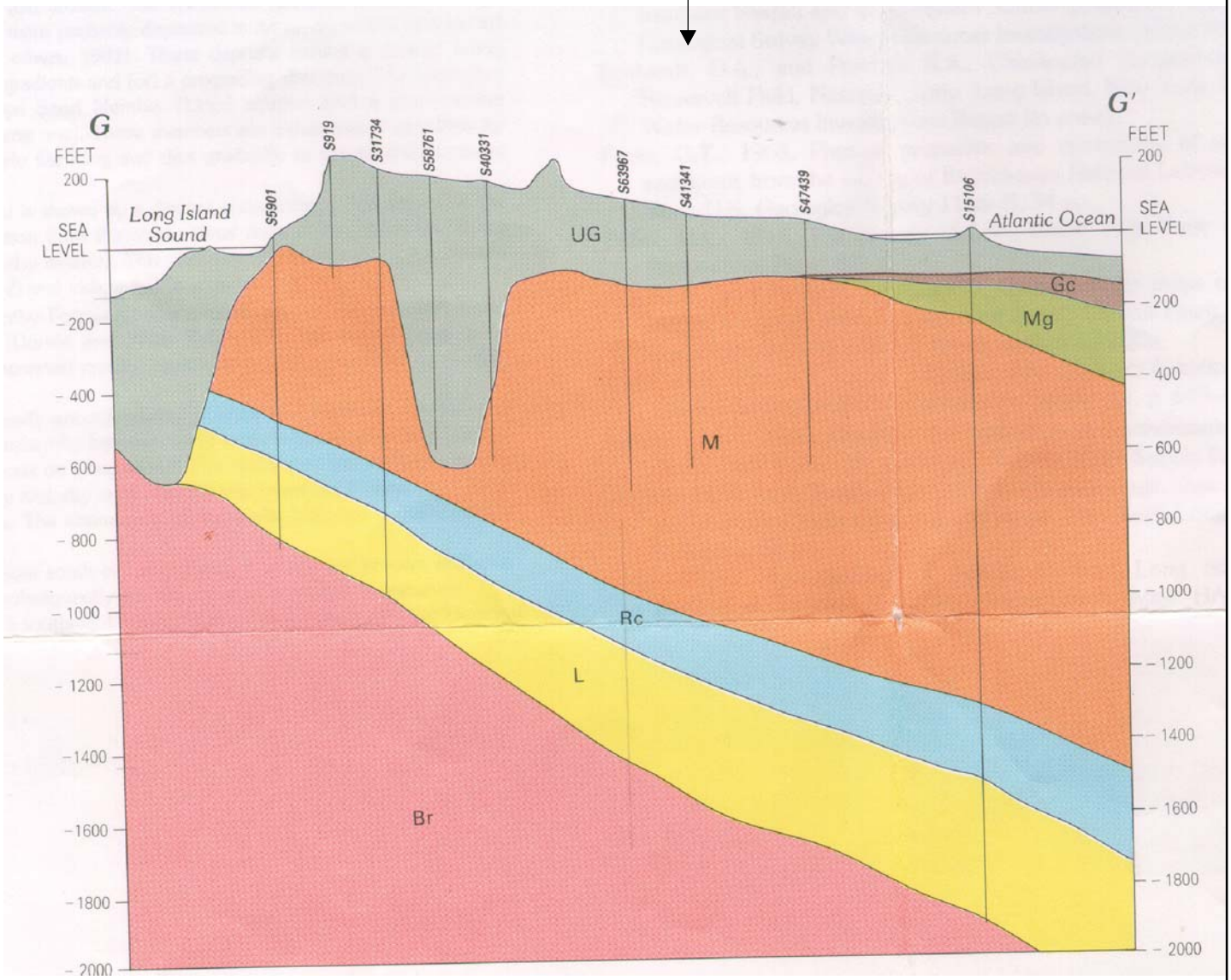

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FIGURE 2-8
GEOLOGIC CROSS-SECTION

Source: section H from Smolensky, et. al; USGS Hydrologic Atlas:709, 1990
Scale: 1 inch = 2,000 feet

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FIGURE 2-9
DOWN-GRADIENT WATER SUPPLY SENSITIVE AREA MAP

Source: NYS Orthophotography, 2016

Scale: 1 inch = 250 feet

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FIGURE 2-10
HABITAT MAP

Source: NYS Orthophotos, 2016
Scale: 1 inch = 500 feet

N

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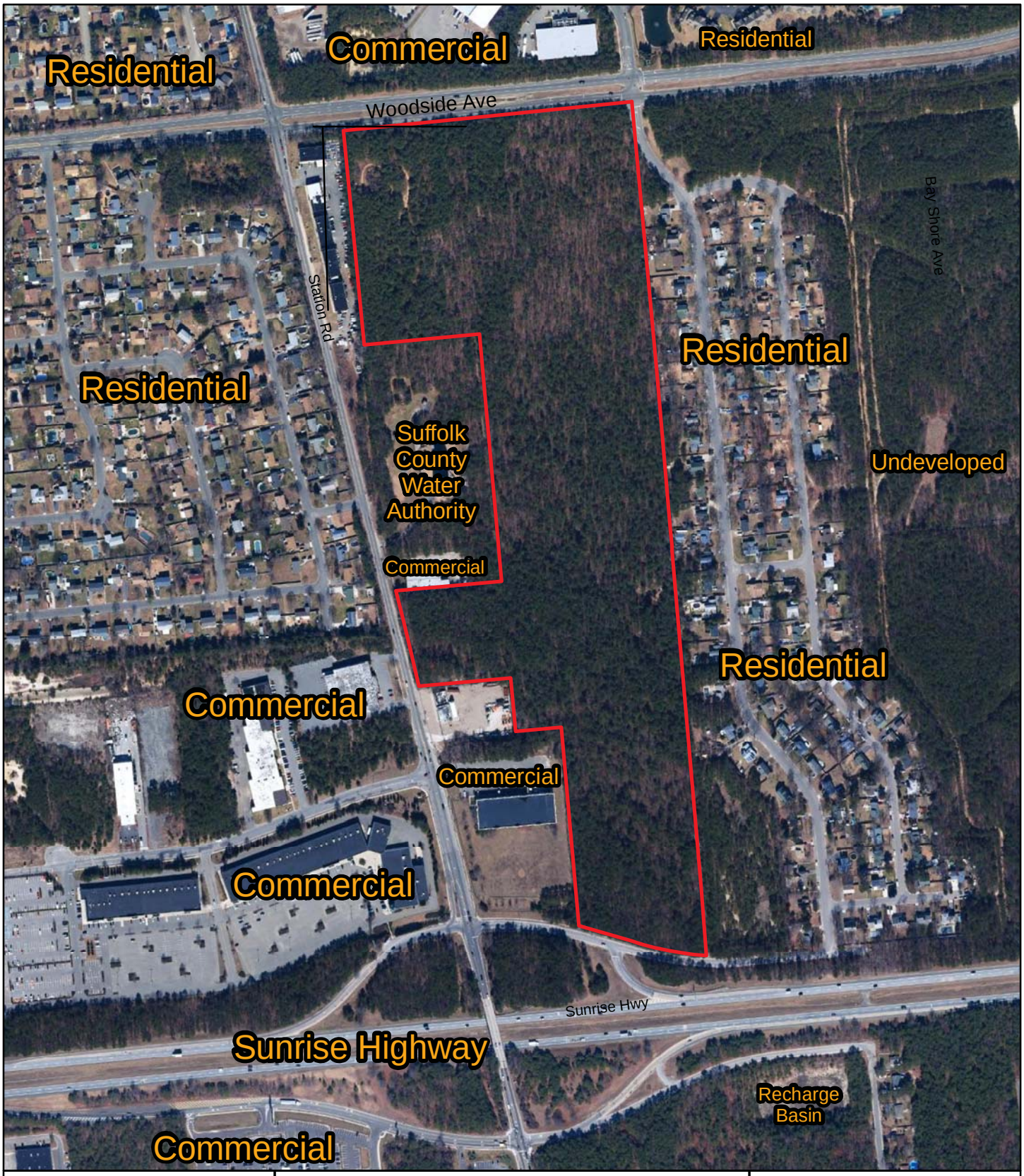

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FIGURE 3-1
LAND USE MAP

Source: NYS Orthophotos, 2016

Scale: 1 inch = 500 feet

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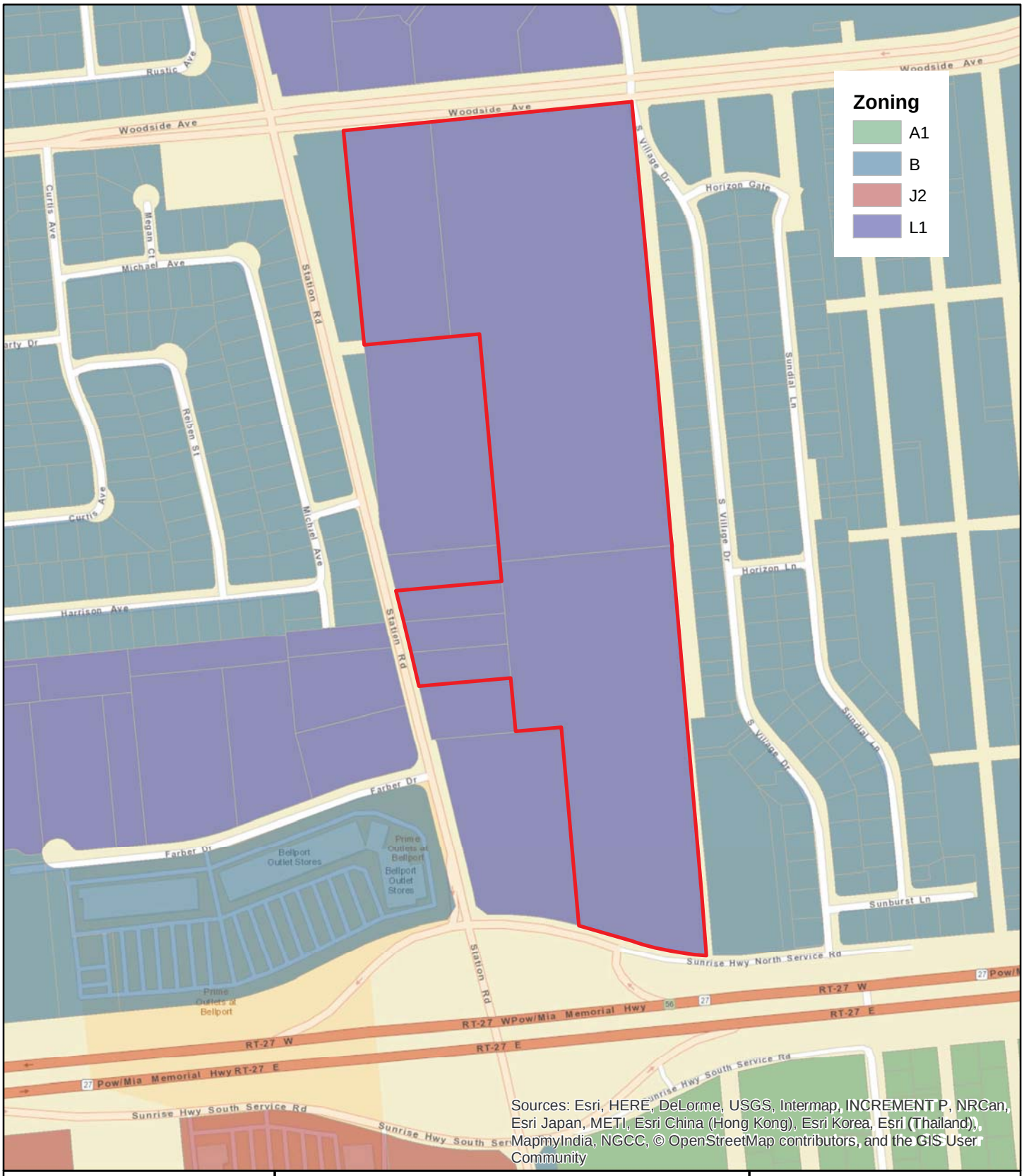

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FIGURE 3-2
ZONING MAP

Source: ESRI wms; Town of Southold Zoning sheet 1
Scale: 1 inch = 500 feet

N

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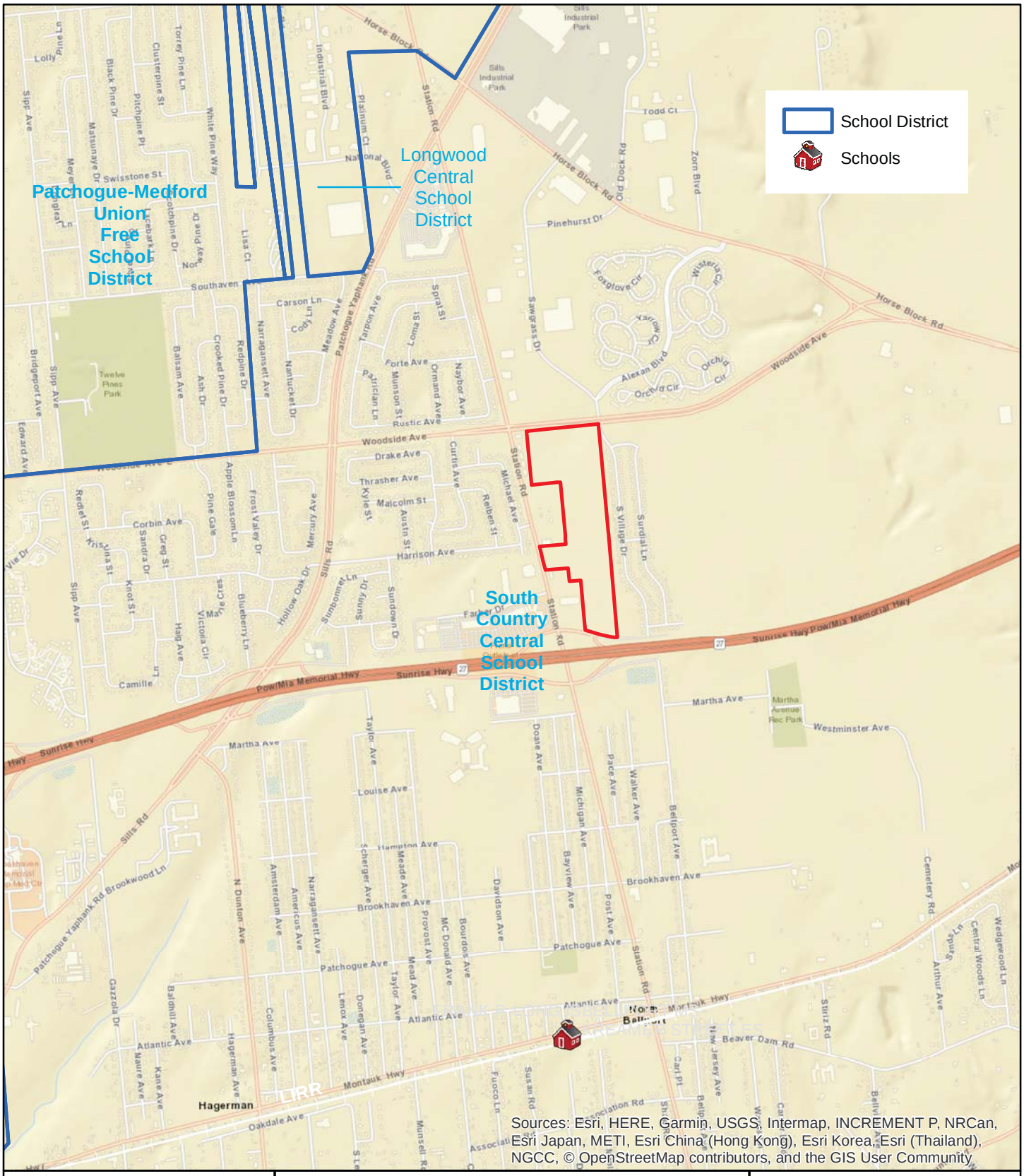

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FIGURE 3-3
COMMUNITY SERVICES MAP, SCHOOL DISTRICTS

Source: ESRI wms; Suffolk County Data

Scale: 1 inch = 2,000 feet

N

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FIGURE 3-4
COMMUNITY SERVICES MAP, EMERGENCY SERVICES

Source: ESRI wms; Suffolk County Data

Scale: 1 inch = 3,000 feet

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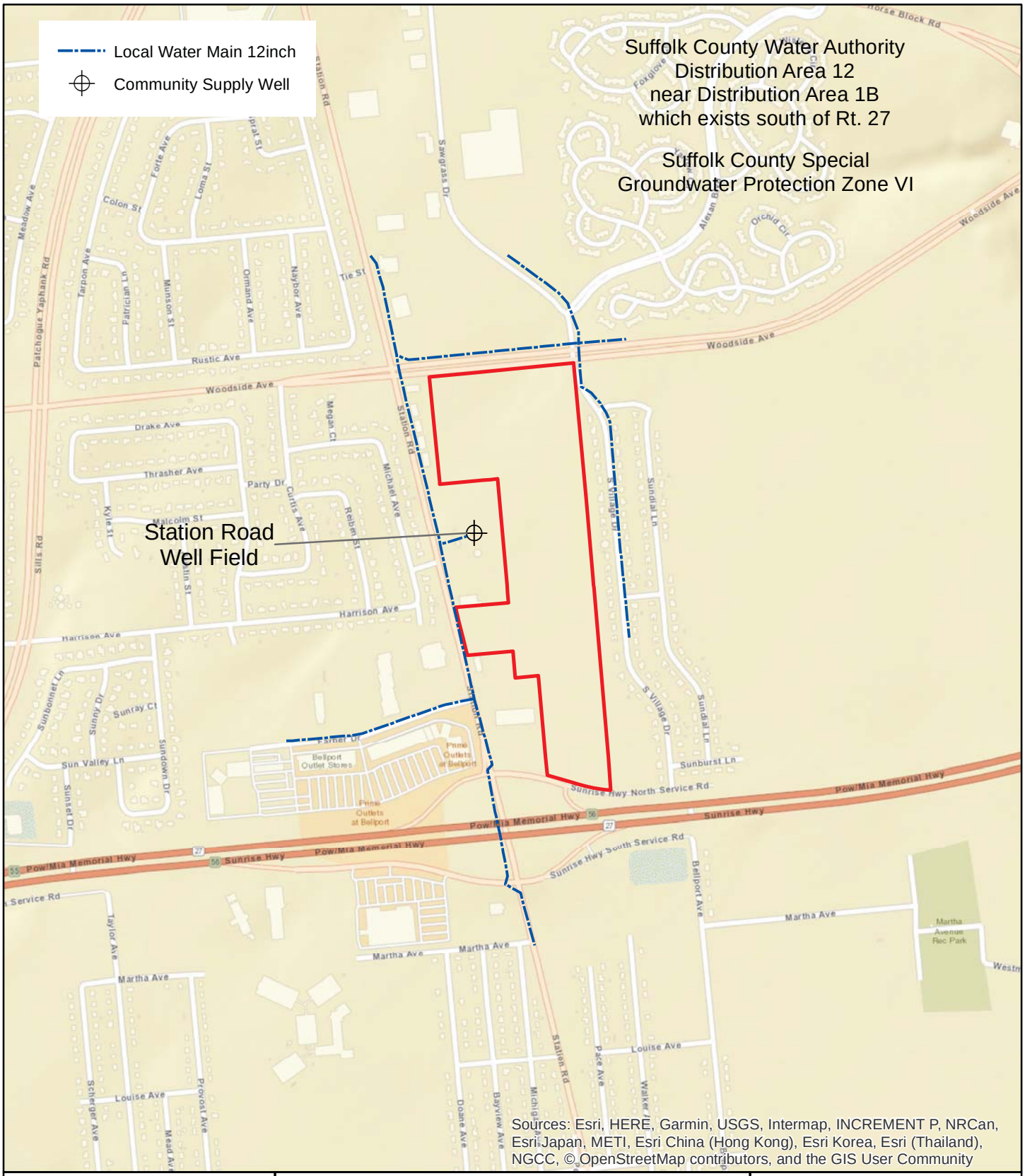

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FIGURE 3-5
COMMUNITY SERVICES MAP, PUBLIC WATER SUPPLY

Source: ESRI wms; Suffolk County Data; SWAP data from 2003
Scale: 1 inch = 1,000 feet

N

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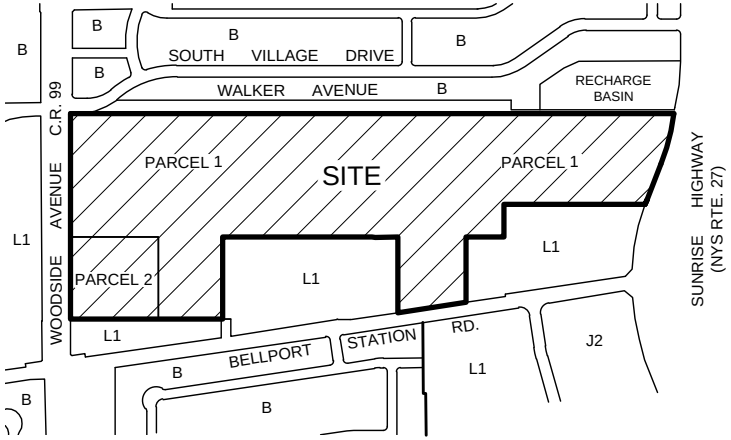
Draft EIS

APPENDICES

AREA OF SITE: 52.95 ACRES
S.C.T.M.: 0200-872-02-15 & 16
0200-899-03-2.2, 2.3, 2.4 & 7
SCHOOL DISTRICT: SOUTH COUNTRY CSD, No. 12
PRESENT ZONE: L-1
REZONE TO PDD AND NH-H
SITUATED AT: BELLPORT

NOTES:
PARCEL 1 (PDD): 48.46 ACRES
PARCEL 2 (NH-H): 4.49 ACRES
TOTAL: 52.95 ACRES

APPLICANT:
CREST BELLPORT LLC
1201 ROUTE 112 SUITE 900
PORT JEFFERSON STATION, NY, 11776



CREST TOWN CENTER PDD & NH-H CHANGE OF ZONE

PREPARED BY
NELSON & POPE
MELVILLE, NY 11747

JANUARY 2017
REVISED JANUARY 2018
REVISED MARCH 2018
REVISED JUNE 2018
REVISED SEPT 2018

JOB No. 16212 FILE No. 200- SCALE:1"=1000'

SUGGESTED DESCRIPTION OF PROPERTY SUBJECT TO REZONE, SITUATED AT BELLPORT, TOWN OF BROOKHAVEN, STATE OF NEW YORK. (REZONE FROM L-1 TO PDD)

SCTM: DISTRICT 0200; SECTION 872; BLOCK 02; P/O LOTS 15 & 16
DISTRICT 0200; SECTION 899; BLOCK 03; LOTS 2.2, 2.3, 2.4, 7

BEGINNING at a point on the southerly side of Woodside Avenue (C.R. 99), said point being 604.62 feet easterly of the intersection formed by the southerly side of Woodside Avenue (C.R. 99 and the easterly side of Bellport Station Road;

RUNNING THENCE along the southerly side of Woodside Avenue the following two (2) courses and distances:

1) N 84° 31’ 08” E, 580.66 feet;
2) N 84° 30’ 14” E, 61.71 feet the westerly side of Walker Avenue (not open);

THENCE southerly along the westerly side of Walker Avenue (not open), S 05° 30’ 14” E, 3,140.71 feet, the northerly line of Sunrise Highway Service Road (NYS Route 27);

THENCE westerly along the northerly side of Sunrise Highway North Service Road (NYS Route 27), the following three (3) courses and distances:

1) Along the arc of a curve bearing to the right, having a radius of 1,115.92 feet; and a length of 271.51 feet; to a point;
2) N 74° 09’ 14” W, 200.00 feet, to a point;
3) Along the arc of a curve bearing to the left, having a radius of 1,175.92 feet and a length of 25.38 feet to land now or formerly of Level 3 Landing Station;

THENCE along said land the following two (2) courses:

1) N 05° 35’ 32” W, 734.55 feet;
2) S 84° 30’ 28” W, 167.55 feet to land now or formerly of Bellport Realty, LLC;

THENCE along said land the following two (2) courses:

1) N 05° 35’ 32” W, 197.79 feet;
2) S 84° 30’ 25” W, 341.20 feet to the easterly side of Bellport Station Road;

THENCE northerly along the easterly side of Bellport Station Road N 14° 01’ 32” W, 359.99 feet to land now or formerly of C. Howard Co., Inc.;

THENCE along said land the following three (3) courses and distances:

1) N 84° 30’ 28” E, 392.98 feet;
2) N 05° 45’ 22” W, 116.68 feet;
3) N 02° 33’ 42” W, 17.63 feet to land now or formerly of Suffolk County;

THENCE along said land the following two (2) courses and distances:

1) N 05° 29’ 32” W, 777.43 feet;
2) N 84° 30’ 28” E, 427.88 feet to the easterly terminus of Corbin Avenue;

THENCE northerly along the easterly terminus of Corbin Avenue and land now or formerly of Tarzia N 05° 25; 52” W, 334.00 feet;

THENCE N 84° 29’ 46” E, 427.26 feet;

THENCE N 05° 30’ 14’ W, 457.72 feet to the southerly side of Woodside Avenue (CR 99) and the POINT or PLACE of BEGINNING.

Containing within said bounds: 48.46 acres

SUGGESTED DESCRIPTION OF PROPERTY SUBJECT TO REZONE, SITUATED AT BELLPORT, TOWN OF BROOKHAVEN, STATE OF NEW YORK. (REZONE FROM L-1 TO NH-H)

SCTM: DISTRICT 0200; SECTION 872; BLOCK 02; P/O LOTS 15 & 16
DISTRICT 0200; SECTION 899; BLOCK 03; LOTS 2.2, 2.3, 2.4 & 7

BEGINNING at a point on the southerly side of Woodside Avenue (C.R. 99), said point being 177.75 feet easterly of the intersection formed by the southerly side of Woodside Avenue (C.R. 99 and the easterly side of Bellport Station Road;

RUNNING THENCE easterly along the southerly line of Woodside Avenue N 84° 31' 08" E, 426.87 feet;

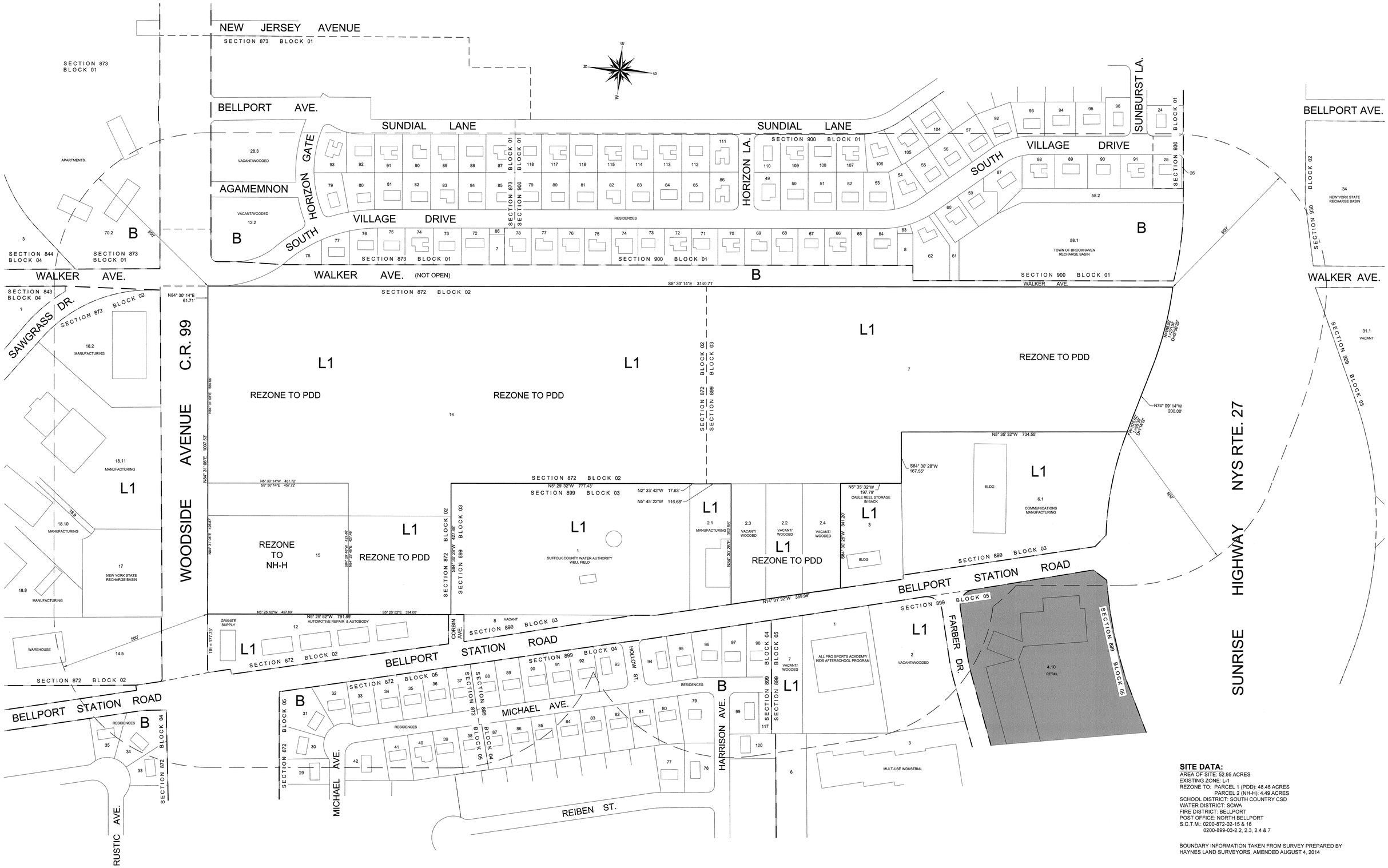
THENCE S 05° 30' 14' E, 457.72 feet;
THENCE S 84° 29' 46" W, 427.46 feet to land now or formerly of Leonard Tarzia;

THENCE northerly along land now or formerly of Leonard Tarzia N 05° 25' 52" W, 457.89 feet to the POINT or PLACE of BEGINNING.

Containing within said bounds: 4.49 acres

June 21, 2018
Revised September 6, 2018

Job No. 16212e



SITE DATA:
AREA OF SITE: 52.95 ACRES
EXISTING ZONE: L-1
REZONE TO: PARCEL 1 (PDD): 48.46 ACRES
PARCEL 2 (NH-H): 4.49 ACRES
SCHOOL DISTRICT: SOUTH COUNTRY CSD
WATER DISTRICT: SCWA
FIRE DISTRICT: BELLPORT
POST OFFICE: NORTH BELLPORT
S.C.T.M.: 0200-872-02-15 & 16
0200-899-03-2.2, 2.3, 2.4 & 7

BOUNDARY INFORMATION TAKEN FROM SURVEY PREPARED BY HAYNES LAND SURVEYORS, AMENDED AUGUST 4, 2014

I HEREBY CERTIFY THAT THIS RADIUS MAP ACCURATELY DESCRIBES THE USES OF THE PROPERTY SURROUNDING THE SUBJECT PREMISES AS OF 02-25-2017 AND THAT THE NAMES AND ADDRESSES SHOWN ON SAID RADIUS MAP WERE OBTAINED FROM THE BROOKHAVEN ASSESSOR'S OFFICE AT 1 INDEPENDENCE PLAZA, FARMINGVILLE, N.Y., 11738.

THOMAS C. DIXON, P.E. No. 80973

ZONING LEGEND:

B	J2 BUSINESS	L1
B RESIDENCE	J2 BUSINESS	L1 INDUSTRIAL

NO.	DATE:	REVISIONS:	BY:
3	09-07-2018	NO REVISIONS THIS SHEET	LB
2	06-21-2018	REVISED PER TOWN AND CLIENT	LB
1	01-05-2018	REVISED PER TOWN COMMENTS, LETTER DATED AUGUST 29, 2017	LB

P.E. SEAL AND SIGNATURE

500' RADIUS MAP
FOR:
CHANGE OF ZONE FOR CREST TOWN CENTER
SITUATED AT
BELLPORT
TOWN OF BROOKHAVEN, SUFFOLK COUNTY, NEW YORK
S.C.T.M.: DISTRICT: 200, SECT: 872, BLK: 02, LOTS 15 & 16
DISTRICT: 200, SECT: 899, BLK: 03, LOTS 2.2, 2.3, 2.4, & 7

NELSON & POPE
ENGINEERS & SURVEYORS
572 WALT WHITMAN ROAD, MELVILLE, N.Y. 11747
PHONE (631) 427-5665 FAX (631) 427-5620
WWW.NELSONPOPE.COM

PROJECT NO.:	16212
DRAWN BY:	LB
CHECKED BY:	CV
DATE:	01-25-17
SCALE:	1"= 100'
FILE NO.:	200-
CADD:	REZONE\16212 RM & 4X4
DRAWING NO.:	C-101
SHEET NO.:	1 OF 2

0200 84300 0400 001000
QUALITY KING DISTRIBUTORS INC.
2060 9TH AVE
RONKONKOMA, NY 11779

0200 84400 0400 003000
BELLPORT PROPERTY INVESTORS LLC
10 E 53RD ST FLOOR 37
NEW YORK NY 10022

0200 87200 0200 012000
TARZIA LEONARD
38 CRESCENT CT
WADING RIVER NY 11792

0200 87200 0200 014005
BAT REAL ESTATE HOLDINGS LLC
7 SUGARWOOD CT
COMMACK NY 11725

0200 87200 0200 017000
TOWN OF BROOKHAVEN
C/O DEPT OFFINANCE
1 INDEPENDENCE HL
FARMINGVILLE NY 11738

0200 87200 0200 018002
MASSA REALTY ASSOCIATES LLC
58 SAWGRASS DR
BELLPORT NY 11713

0200 87200 0590 033000
BUGDEN JOHN & SUSAN
19 MICHAEL AVE
BELLPORT NY 11713

0200 87200 0200 018008
TOWN OF BROOKHAVEN IDA
MCKEON ROLLING STEEL DOOR
44 SAWGRASS DR
BELLPORT NY 11713

0200 87200 0200 018009
YAPHANK 40 ASSOC &
OLD DOCK ASSOC
195 FROEHLICH FARM BLVD
WOODBURY NY 11797

0200 87200 0200 018010
KHOSLA REALTY LLC
48 SAW GRASS DR
BELLPORT NY 11713

0200 87200 0200 018.011
T A MORRIS SONS INC.
50 SAWGRASS DR
BELLPORT, NY 11713

0200 87200 0400 033000
SHATA MAGID
55 RUSTIC AVE
MEDFORD NY 11763

0200 87200 0400 034000
BRISBANE FRANCES
53 RUSTIC AVE
MEDFORD NY 11763

0200 87200 0400 035000
HILLARD NATHAN & KELLY
51 RUSTIC AVE
MEDFORD NY 11763

0200 87200 0500 029000
HILLMAN MARC & RANDY
9 MICHAEL AVE
BELLPORT NY 11713

0200 87200 0500 030000
DECARVALHO DANIELA & VITAL PAUL' I
1 MICHAEL AVE
BELLPORT NY 11713

0200 87200 0500 031000
HAWALDER REAZ & SAFEENA J
15 MICHAEL AVE
BELLPORT NY 11713

0200 87200 0500 032000
STANLEY TIMOTHY & MARTHA
17 MICHAEL AVE
BELLPORT NY 11713

0200 87200 0500 034000
LOPEZ LUIS & GLORIA
21 MICHAEL AVE
BELLPORT NY 11713

0200 87200 0500 035000
AGUILAR RONY & MARTA S
23 MICHAEL AVE
BELLPORT NY 11713

0200 87200 0500 036000
KOERBER BARRY & ELVIRA
25 MICHAEL AVE
BELLPORT NY 11713

0200 87200 0500 038000
PAGAN SHARON & WRIGHT MARGE
22 MICHAEL AVE
BELLPORT NY 11713

0200 87200 0500 039000
BERG EDWARD & RODRIGUEZ KRYST
20 MICHAEL AVE
BELLPORT NY 11713

0200 87200 0500 040000
QUINN KEVIN & DENISE
18 MICHAEL AVE
BELLPORTNY 11713

0200 87200 0500 041000
PROJECT SHARE III INC
PO BOX 358
MEDFORD NY 11763

0200 87200 0500 042000
DINOCOLA NICHOLAS
14 MICHAEL AVE
BELLPORT NY 11713

0200 87300 0100 086000
COUNTY OF SUFFOLK
330 CENTER DR
RIVERHEAD NY 11901

0200 87300 0100 082000
OLIVER DENNIS &JANEROSE
17 S VILLAGE DR
BELLPORT NY 11713

0200 87300 0100 077000
BROWN CHRISTINE
PO BOX 789
BELLPORT NY 11713

0200 87300 0100 078000
COUNTY OF SUFFOLK
330 CENTER DR
RIVERHEAD NY 11901

0200 87300 0100 079000
KOABEL JOHN T
2 HORIZON GATE
BELLPORT NY 11713

0200 87300 0100 081000
PENNANT ROBERT & MARIA
15 S VILLAGE DR
BELLPORT NY 11713

0200 87300 0100 083000
SEDA HECTOR & NANCY
19 SO VILLAGE DR
BELLPORT NY 11713

0200 87300 0100 084000
MARSH WILBIN & LOUISE
21 S VILLAGE DR
BELLPORT NY 11713

0200 87300 0100 085000
TRENT DWAN & LATASHA
23 S VILLAGE DR
BELLPORT NY 11713

0200 87200 0500 037000
BISHOP SUSAN
27 MICHAEL AVE
BELLPORT NY 11713

0200 87300 0100 007000
LONG BARBARA A
20 S VILLAGE DR
BELLPORT NY 11713

0200 87300 0100 012002
TOWN OF BROOKHAVEN
C/O DEPT OF FINANCE
1 INDEPENDENCE HL
FARMINGVILLE NY 11738

0200 87300 0100 028003
TOWN OF BROOKHAVEN
C/O DEPT OF FINANCE
1 INDEPENDENCE HL
FARMINGVILLE NY 11738

0200 87300 0100 070002
BELLPORT PROPERTY INVESTORS I LLC
IO E 53RD ST FLOOR 37
NEW YORK NY 10022

0200 87300 0100 072000
LONG BARBARA A
20 S VILLAGE DR
BELLPORT NY 11713

0200 87300 0100 073000
ONEILL JESSIE
18 SOUTH VILLAGE DR
BELLPORT NY 11713

0200 87300 0100 074000
ISLAND MOTOCROSS OF NEW YORK IN<
21 E MARGIN RD
RIDGE NY 11961

0200 87300 0100 075000
HARTMANN WILLIAM & MARGARET
14 S VILLAGE DR
BELLPORT NY 11713

0200 87300 0100 076000
GONZALEZ SHERRY ANN
12 S VILLAGE DR
BELLPORT NY 11713

0200 87300 0100 080000
DELGADO JOSEPH
11 S VILLAGE DR
BELLPORT NY 11713

0200 87300 0100 087000
TRUCE JUSTIN & MELISSA
14 SUNDIAL LN
BELLPORT NY 11713

0200 87300 0100 090000
VILLATORO VIRGINIA
8 SUNDIAL LA
BELLPORT NY 11713

0200 87300 0100 088000
CUTLER GENEVA
I2 SUNDIAL LN
BELLPORT NY 11713

0200 87300 0100 089000
CHAMPNEY CLARK
10 SUNDIAL LN
BELLPORT NY 11713

0200 87300 0100 091000
CARDENAS GLADYS MAGDALENA
CARDENAS JORGE LUIS
6 SUNDIAL LN
BELLPORT NY 11713

0200 87300 0100 092000
HOWARD GREGORY & PATRICIA
4 SUNDIAL LA
BELLPORT NY 11713

0200 87300 0100 093000
MENA DIANA C & MANUEL A
4 HORIZON GATE ST
BELLPORT NY 11713

0200 89900 0400 081000
SASSO LORRAINE & RICHARD MUSET
36 MICHAEL AVE
BELLPORT NY 11713

0200 89900 0400 080000
FORGIONE JOHN & CAROLYN
38 MICHAEL AVE
BELLPORT NY 11713

0200 89900 0400 082000
ROSSI JOSEPH & MARIE
34 MICHAEL AVE
BELLPORT NY 11713

0200 89900 0300 003000
BEYER BELLPORT REALTY LLC
PO BOX 970
ISLANDIA NY 11749

0200 89900 0300 00600 l
LEVEL 3 LANDING STATION
INC
1025 ELDORADO BLVD
BROOMFIELD CO 80021

0200 89900 0300 008000
TARZIA LEONARD
38 CRESCENT CT
WADING RIVER NY 11792

0200 89900 0300 001000
SUFFOLK COUNTY
WATER AUTHORITY
PO BX 37
OAKDALE NY II769

0200 89900 0300 002001
C HOWARD CO INC
1007 STATION RD
BELLPORT NY 11713

0200 89900 0400 077000
HERNANDEZ HUGO & KELLY
31 REIBEN ST
BELLPORT NY 11713

0200 89900 0400 078000
FUENTES MARLENIS & REYES JOSE
5 HARRISON AVE
BELLPORT NY 11713

0200 89900 0400 079000
JOHNSON LYNZIEL & JOHNSON VANDID
40 MICHAEL AVE
BELLPORT NY 11713

0200 89900 0400 084000
CASTRIOTA MARY M LIE &
SR CASTRIOTA & RA CASTRIOTA TI
30 MICHAEL AVE
BELLPORT NY 11713

0200 89900 0400 086000
CAMARILLO ROMERO BELEM & GUARA
SALINAS JANETH
26 MICHAEL AVE
BELLPORT NY 11713

0200 89900 0400 085000
HENNIN KEITH J & EMILY
28 MICHAEL AVE
BELLPORT NY 11713

0200 89900 0400 087000
CHOJNACKI KENNETH P &
ANNA MARIA FASSULA
24 MICHAEL AVE
BELLPORT NY 11713

0200 89900 0400 088000
SARAVIA MERCEDES
29 MICHAEL AVE
BELLPORT NY 11713

0200 89900 0400 089000
FOY JAMES
31 MICHAEL AVE
BELLPORT NY 11713

0200 89900 0400 090000
DIMARIA GIOVANNA
33 MICHAEL AVE
BELLPORT NY 11713

0200 89900 0400 091000
DESIMONE DOMINICK&MARY
35 MICHAEL AVE
BELLPORT NY 11713

0200 89900 0400 092000
WEBSTER JAMES & WEBSTER NICHOLA
37 MICHAEL AVE
BELLPORT NY 11713

0200 89900 0400 093000
MCKEE CASEY & MARIA
3 HOLLOW ST
BELLPORT NY 11713

0200 89900 0400 094000
DONNADIO PATRICIA & VEREROSA HEI
2 HOLLOW ST
BELLPORT NY 11713

0200 89900 0400 101000
RICHUITTI JOSEPH R &
CHERYLR
6 HARRISON AVE
BELLPORT NY 11713

0200 89900 0400 098000
ELLIOTT KRISTIN D
49 MICHAEL AVE
BELLPORT NY 11713

0200 89900 0400 100000
FABIAN GULLERMO
4 HARRISON AVE
BELLPORT NY 11713

0200 89900 0400 095000
DUNCKLEY DONALD & MICHELE
43 MICHAEL AVE
BELLPORT NY 11713

0200 89900 0400 097000
HERNANDEZ ANA
47 MICHAEL AVE
BELLPORT NY 11713

0200 89900 0400 096000
CURRERI ROSE MARIE
45 MICHAEL AVE
BELLPORT NY 11713

0200 89900 0500 004010
SUNRISE STATION LLC
C/O SID FARBER ENTERPRISES
PO BOX 113
MEDFORD NY 11763

0200 89900 0500 001000
FARBER INDUSTRIAL LLC
PO BOX 113
MEDFORD NY 11763

0200 89900 0500 003000
FARBER INDUSTRIAL LLC
PO BOX 113
MEDFORD NY 11763

0200 89900 0500 002000
FARBER INDUSTRIAL LLC
PO BOX 113
MEDFORD NY 11763

0200 90000 0100 052000
DIBBA EBRIMA
49 S VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 050000
MARSHALL YVONNE
45 S VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 051000
BUCCIERI BEVERLY
47 S VILLAGE DR
BELLPORTNY 11713

0200 90000 0100 053000
MAYBERGER ROBERT
51 S VILLAGE DR
BELLPORT NY 11713

0200 89900 0500 006000
TOWN OF BROOKHAVEN
C/O DEPT OF FINANCE
1 INDEPENDENCE HILL
FARMINGVILLE NY 11738

0200 89900 0500 007000
TOWN OF BROOKHAVEN
C/O DEPT OF FINANCE
INDEPENDENCE HL
FARMINGVILLE NY 11738

0200 90000 0100 006000
COUNTY OF SUFFOLK
330 CENTER DR
RIVERHEAD NY 11901

0200 90000 0100 008000
COUNTY OF SUFFOLK
330 CENTER DR
RIVERHEAD NY 1190 l

0200 90000 0100 049000
QUINONES ALFREDO
2 HORIZON LA
BELLPORT NY 11713

0200 90000 0100 054000
MANN PETER J
53 S VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 055000
PAUKNER RONALD & KAREN FORBES P
55 S VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 056000
HARRIS ORVETTA
57 S VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 057000
WOLFE RICHARD & JOAN
59 S VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 058001
TOWN OF BROOKHAVEN
C/O DEPT OF FINANCE
I INDEPENDENCE HL
FARMINGVILLE NY 11738

0200 90000 0100 058002
TOWN OF BROOKHAVEN
DEPT OF FINANCE
INDEPENDENCE HL
FARMING VILLE NY 11738

0200 90000 0100 059000
KENNEDY HELEN
60 S VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 060000
NIAS NANCY & PERALTA JOSE
58 SOUTH VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 061000
SUFFOLK CTY SEWER AGENCY
45 MALL DR
COMMACK NY 11725

0200 90000 0100 081000
HSBC BANK USA NATIONAL ASSOCIATION
29 SOUTH VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 067000
UMBARILA ALFONSO JR & ALEXANDRIA
6001 LEE DR
CYPRESS CA 90630

0200 90000 0100 062000
GOVERNALI FAMILY 2013 IRREVOCABLE
JESSICA & JAMES GOVERNALI TRUST
56 S VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 063000
COUNTY OF SUFFOLK
330 CENTER DR
RIVERHEAD NY 1190 l

0200 90000 0100 064000
SMITH KATHLEEN M
52 SO VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 066000
COMBS JENNIE & WILLIE H COMBS
48 SOUTH VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 065000
COUNTY OF SUFFOLK
330 CENTER DR
RIVERHEAD NY 1190 l

0200 90000 0100 068000
ORLANDO LOUIS
44 SOUTH VILLAGE DR l
BELLPORT NY 11713

0200 90000 0100 069000
HENRIQUES ABRAHAM & B
42 S VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 070000
LEDEE JOSEPHINE & CARLOS &
CARMEN ORTIZ
40 SOUTH VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 072000
SANCHEZ SANTOS
36 S VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 071 000
VAZ JAMES & DOREEN
38 S VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 079000
WELLS FARGO BANK N A
25 SOUTH VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 080000
WILLIAMS ISHMAEL
27 SOUTH VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 073000
BAVARO RAYMOND & MARG
34 S VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 074000
ROMAN IVAN
32 SOUTH VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 075000
RUSSELL ELYIN & EVON C/O
13437 REMUDA RANCH DR l
SAN ANTONIO TX 78254

0200 90000 0100 076000
KLEIN STELLA
28 SO VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 077000
SAFFARI KAREN ELIZABETH
SANZANO PHILLIP
26 SOUTH VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 078000
BROWN MICHAEL A
24 SO VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 082000
GAROFOLA MICHAEL & PATRICIA
31 SO VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 083000
ROSE SHIRLEY
33 S VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 084000
FIGUEROA GABRIEL & BETTY
35 S. VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 085000
UMBARILA BEATRIZ
37 SO VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 086000
MAURISSEAU ULRICK & EUNICE
1HORIZON LN
BELLPORT NY 11713

0200 90000 0100 087000
TAVARES JOSE
62 VILLAGE DRS
BELLPORT NY 11713

0200 90000 0100 095000
BILLINGS ERIC & BILLINGS KAY
67 SOUTH VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 091000
LAGRANGE GEORGIA
70 SOUTH VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 090000
SANTANA MIGUEL
68 S VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 093000
TAITT RUPERT & JOAN
63 S VILLAGE DR
BELLPORT NY 11713

0200 90000 01000 094000
MOJICA JUAN A
65 S VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 088000
STORY MONINA
64 S VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 089000
PINEIRO MYRNA
66 S VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 092000
SHAFFER KATHERINE
61 SOUTH VILLAGE DR
BELLPORT NY 11713

0200 90000 0100 096000
UMBARILA ALFONSO
6001 LEE ST
CYPRESS CA 90630

0200 90000 0100 105000
COUNTY OF SUFFOLK
330 CENTER DR
RIVERHEAD NY 1190 l

0200 90000 0100 109000
PACHECO CECILIA
36 SUNDIAL LN
BELLPORT NY 11713

0200 90000 0100 108000
BERRIOS VICTOR
38 SUNDIAL LA
BELLPORT NY 11713

0200 90000 0100 104000
GIL FRANK JR & SHARON &
46 SUNDIAL LA
BELLPORT NY 11713

0200 90000 0100 106000
BAY AREA EQUITIES INC
662 MONTAUK HWY
SHIRLEY NY 11967

0200 90000 0100 107000
FRANCO HECTOR & ANAL
40 SUNDIAL LN
BELLPORT NY 11713

0200 90000 0100 111000
BRADY ROBERT M
3 HORIZON LN
BELLPORT NY 11713

0200 90000 0100 114000
JASMIN HARVEY
24 SUNDIAL LA
BELLPORT NY 11713

0200 90000 0100 113000
WEISSBACH JOHN E & OLIVIA
26 SUNDIAL LN
BELLPORT NY 11713

0200 90000 0100 110000
FAREED MUHAMMAD HAMZA & MAJI
MAJID MISBAH
4 HORIZON LN
BELLPORT NY 11713

0200 90000 0100 112000
SANCHEZ OVIDIO JR
28 SUNDIAL LN
BELLPORT NY 11713

0200 90000 0100 115000
COUNTY OF SUFFOLK
330 CENTER DR
RIVERHEAD NY 11901

0200 90000 0100 116000
SHULL CHERYL
20 SUNDIAL LN
BELLPORT NY 11713

0200 90000 0100 117000
PLAZA CESAR
18 SUNDIAL LN
BELLPORT NY 11713

0200 90000 0100 118000
HERNANDEZ GERMAN & RUTH E
16 SUNDIAL LN
BELLPORT NY 11713

0200 92900 0300 03100 l
BOBORIS DIMITRIOS
24 SWANVIEW DR
PATCHOGUE NY 11772

0200 93000 0200 034000
NEW YORK STATE
STATE OFFICE BLDG
VET MEM HWY
HAUPPAUGE NY 11788

0200 93000 0100 025000
GRIFFIN SHEILA
72 S VILLAGE DR
BELLPORT NY 11713

0200 93000 0100 024000
MIRABELLI KAREN
2 SUNBURST LN
BELLPORT NY 11713

0200 8 9 9 0 0 0400 117001
JONES TREAVOR
2 HARRISON AVE
BELLPORT NY 11713

NO.	DATE:	REVISIONS:	BY:

P.E. SEAL AND SIGNATURE

500' RADIUS MAP
FOR
CREST TOWN CENTER
SITUATED AT
BELLPORT
TOWN OF BROOKHAVEN, SUFFOLK COUNTY, NEW YORK
S.C.T.M.: DISTRICT: 200, SECT. 872, BLK. 02, LOTS 15 & 16
DISTRICT: 200, SECT. 899, BLK. 03, LOTS 2,2, 2,3, 2,4, & 7

NELSON & POPE
ENGINEERS & SURVEYORS
WALT WHITMAN ROAD MELLLE N
PHONE FAX
WWW.NELSONPOPE.COM

PROJECT NO.:
DRAWN BY:
CHECKED BY:
DATE:
SCALE:
FILE NO.:
CADD: REZONE RM &
DRAWING NO.:
C-101
SHEET NO.: OF