EXHIBIT A

DRAFT
Environmental
Impact Statement

For the:

Gyrodyne, LLC

Map of Flowerfield Subdivision Application

Hamlet of St. James, Town of Smithtown
Suffolk County, New York

November 2019

Cameron Engineering & Associates, LLP

DRAFT ENVIRONMENTAL IMPACT STATEMENT
for the
Gyrodyne LLC
Map of Flowerfield
Subdivision Application

74.98 acres between Mills Pond Road, NYS Route 25A/North Country Road, and
Long Island Rail Road Right-of-Way
Hamlet of St. James, Town of Smithtown, Suffolk County, New York

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DATE OF ACCEPTANCE OF DEIS BY LEAD AGENCY: As per attached Transmittal letter

COMMENTS ON THIS DEIS ARE TO BE SUBMITTED TO THE LEAD AGENCY BY: As per attached Transmittal letter

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1. Executive Summary

1.1. Project Background

The Proposed Action seeks to establish the Map of Flowerfield Preliminary Subdivision Plan for the 74.98-acre Flowerfield site. More specifically, Gyrodyne, LLC (Gyrodyne) seeks approvals from the Town of Smithtown to subdivide the Flowerfield site into a sustainable mixed-use campus with nine (9) lots. The site currently has industrial and commercial uses, including the Flowerfield Celebrations catering hall, on the western sections of the property, with the remainder of the site vacant. The Flowerfield property is situated on the east side of Mills Pond Road, between NYS Route 25A (North Country Road) and the Long Island Rail Road (LIRR) right-of-way in St. James in the Town of Smithtown.

The respective Location Map, Aerial Map, Preliminary Subdivision Plan, Conceptual Development Exhibit, and Zoning Map are provided in Figure 1-1 through Figure 1-5 on pages 1-18 through 1-22.

The mixed-use campus plan set forth herein is the product of extensive planning and environmental analyses, along with consultations with the Town of Smithtown (including a public scoping process) and other involved agencies. Based on these studies and coordination with the Town of Smithtown, Gyrodyne developed a sustainable, mixed-use campus plan that would fit within existing zoning regulations, provide significant open space and consider the goals and objectives of the Town's Draft Comprehensive Plan Update (Draft CPU)[1]. Principally, this approach ensures that future development of the Flowerfield site meets the environmental and design standards set during the subdivision approval process. Such standards would include established thresholds for trip generation, wastewater and associated infrastructure. These established standards play a key role in preserving community character (i.e., reducing the extent of required off-site traffic mitigation).

Gyrodyne had prepared a proposed Draft Environmental Impact Statement (DEIS) in 2008 for a prior development proposal. Some of the background research provided in the 2008 document remains valid for use in this proposed DEIS. For example, archeology research results would not have changed between 2008 and 2019, so the archeology data from the 2008 proposed DEIS is utilized in this proposed DEIS, and cited accordingly. All research and analyses that are no longer valid from the prior study (e.g. traffic, community services, and economic impacts) have been updated.

The applicant is presenting the Map of Flowerfield Preliminary Subdivision Plan as the Proposed Action, with development options that match current market trends, satisfy Town

[1] All references to the Town of Smithtown CPU refer to The Draft CPU, which was never adopted. The Draft CPU can be found at http://smithtownny.gov/comprehensiveplan. The Town Board issued an RFP to rewrite the Draft CPU. In the interim, this study fulfills the stated goals of the Planning Board resolution adopted September 21, 2016: "There should be some more flexibility for development of the Gyrodyne property. The essence of any development should: a. Support Stony Brook University, a major economic engine in the region; b. Provide a large buffer to maintain the natural and historic corridors; and c. Limit overall density to be less intensive than if the property were to be fully built out in compliance with existing LI zoning."

code, and satisfy the described intent of the Draft CPU. This includes conforming to the Town Code definition of the intent for LI Districts, which is "to provide…office, research and development, wholesale and light manufacturing on sites of high aesthetic character, with adequate buffering from adjoining residential neighborhoods."[2]

- Town Code considerations: permitted uses in LI zone, sufficient parking on each lot
- Draft CPU considerations: synergy with and connectivity to Stony Brook University, Stony Brook University Medical Center, and the Flowerfield catering hall; assisted living included as a housing option that is needed within the Town

The Map of Flowerfield would yield nine lots with development envisioned as follows:

Existing uses – to remain:

- Lot 1: the existing light industrial uses
- Lot 2: the existing Flowerfield Celebrations catering hall

Potential new uses:

- Lot 3: envisioned as 181 landbanked parking spaces that would serve potential future overflow from Lot 1
- Lot 4: envisioned as a 150-room hotel with a 150-seat restaurant. The hotel would serve the local community as well as the on-site catering hall, on-site offices, Stony Brook University, Stony Brook University Medical Center and the University's Center of Excellence in Wireless and Information Technology (CEWIT).
- Lots 5 and 6: envisioned as 130,000 square feet of medical office, general office, or technical R&D office space that could support Stony Brook University, Stony Brook University Medical Center, and/or the University's Research and Development (R&D). The lots could be developed separately or as one larger lot.
- Lots 7 and 8: envisioned as 220 assisted living units that could be developed separately or in one combined larger lot. There would be a synergy with the University Medical Center and with the subdivision's medical office space for residents' medical care.
- Lot 9: a commonly-owned and operated lot encompassing ±24 acres of open space, the internal road network, drainage, and a proposed sewage treatment plant (STP) to serve all of the uses on the 74.98-acre property.

1.2. Purpose and Operation

The Applicant intends to sell one or more parcels, such that future buyers would undertake any future redevelopment applications. The Proposed Action in this document is not a formal plan per se; it is a comprehensive guide for future development potential. Accordingly, the DEIS Alternatives are meant to establish a framework so that a future

[2] Town Code §322-7: Intent of Districts, accessed via http://ecode360.com/15103754

buyer/developer will be able to respond to changing market conditions and propose an eventual land use mix and yield with similar or smaller impacts than what is analyzed in this document.

This plan allows redevelopment of the site in a manner that is consistent with existing zoning, with the proximity to Stony Brook University and Stony Brook University Medical Center, with the Town of Smithtown Draft CPU, and with current market trends. The following were considered in developing the Proposed Action:

1. <u>Zoning compliance:</u> Each land use is permitted in the LI zone; the assisted living component and the hotel component are permitted through a special exception that would need to be granted by the Town Board.[3]

   The Applicant has no intent to progress any application that requires a zone change and has no intent to redevelop R-43-zoned portions of the site.

2. <u>Compliance with Draft CPU:</u> As mentioned above, the Town's Draft CPU discusses the need for synergy with Stony Brook University and the need for housing diversity for senior citizens:
   a. The assisted living component would add housing diversity, and the residents could take advantage of the close proximity to Stony Brook Medical.
   b. Medical offices would have synergy with Stony Brook Medical, while R&D/technical office space would have synergy with the University and the Research and Development Park. There would be synergies with one or more components at Stony Brook University regardless of the specific type of office use that eventually locates at the Flowerfield property.
   c. A hotel would have synergy with the existing Flowerfield catering hall, Stony Brook University, the Research and Development Park, and Stony Brook Medical.

3. <u>Traffic generation:</u> A major consideration is to allow full development of this site without creating significant traffic impacts (see Appendix F). The Draft CPU specifically states that "since the surrounding roadways [to the Flowerfield site], principally NYS Route 25A and Mills Pond Road, are not adequate to handle significant increases in traffic, any proposed development here is constrained by roadway capacity."[4]

1.3. Layout and Design

The proposed layout is based on sensitivity to site and community context, responsiveness to the distinctive physical condition of the property, and compliance with LI zoning. Each lot layout provides a building that conforms to Town dimensional standards, such as lot sizes, Floor Area Ratios (FAR), building/parking setbacks, building heights, and the required number of parking spaces[5]. The Proposed Action satisfies all required covenants and buffers by avoiding development within 200 feet of NYS Route 25A (North Country

[3] Town Code §322 Table 9: Industrial Districts: Table Of Use Regulations
[4] Town of Smithtown Draft CPU Volume 5, pages 41-42 and page 47.
[5] As described in the traffic study in Appendix F, some adjacent lots with complementary uses would take advantage of staggered parking demand and utilize shared parking to minimize the loss of green space.

Road), within 100 feet of the existing ponds, and within 100 feet of residentially zoned parcels[6].

A detailed discussion of specific approaches to laying out the subdivision is provided in Section 2.7 starting on page 2-20.

1.4. Potential Impacts and Proposed Mitigation

The following sections summarize the potential impacts that were identified by the analysis, with the corresponding proposed mitigation measures where applicable.

1.5. Geology, Soils, and Topography

Potential Impacts – The northeastern perimeter of the existing site contains steep sloped areas that will not be modified. The proposed Map of Flowerfield Preliminary Subdivision Plan would result in approximately a cut quantity of 37,897 cubic yards and a fill quantity 773 cubic yards, for a net total cut of 37,124 cubic yards (see Appendix M Sheet M-2).

Proposed Mitigation – Where possible, uncontaminated topsoil and subsoil removed during grading would be stockpiled and re-used on-site.

Development associated with the proposed subdivision (internal site roadways, STP) would exceed one-acre in size, and would therefore require a Storm Water Pollution Prevention Plan (SWPPP) as part of the Town approval process. The SWPPP will include Erosion and Sediment Control plans that will specify the types, locations, and maintenance of any erosion control measures. Additionally, the SWPPP will require ongoing, Town-supervised SWPPP inspections for the duration of all construction activity. This will ensure that the erosion controls noted on the engineering documents will be carried out as planned.

The erosion and sediment control measures include inlet protection; silt fencing, hay bales, or an approved equal around the work perimeter; seeding to stabilize stockpiled soils; frequent removal of sediment/trash from control structures and the basin, and other typical measures approved for use in New York State. The Town would review and approve all erosion and sediment control measures. Any damage to features such as swales, diversions, silt fencing, or hay bales would be repaired or replaced as necessary and as directed by the appropriate personnel. The construction entrance would be stabilized with crushed stone and would have a wash-down area for use before any construction vehicles leave the property. This will prevent soil and loose debris from being carried off the work area onto local roads. All construction-related erosion control measures would be removed during final landscaping.

Abrupt grade changes would be avoided to the greatest practical extent. Any abrupt grade changes would be stabilized with natural materials and plantings.

[6] Town Code §322-20 (B) accessed via http://ecode360.com/15103878

1.6. Vegetation and Wildlife

Potential Impacts of Proposed Subdivision – The proposed subdivision will result in a change of habitats found on the site. In the long term, the largest change on the site will be the reduction of the landscaped areas. Given sufficient time, the areas that will remain as "natural" on the plan would probably grow into a Successional Southern Hardwoods ecological community, or if maintained, would remain meadows. In general, most of the Successional Southern Hardwoods would remain as part of the buffer along NYS Route 25A and at the northern tip of the site. Portions of the Mowed Lawn, Mowed Lawn with Trees, and the Successional Old Field will also remain as part of the buffer along NYS Route 25A. The small on-site ponds, NYSDEC-mapped wetlands, would remain.

Most of the wildlife expected to be found on the site are those species that are tolerant of human activity, because of the existing habitats and because of the intensity of the existing and surrounding land uses. The loss of mowed lawn habitats will not result in any significant ecological impacts due to the poor diversity and wildlife habitat provided by these habitats. Under existing and proposed conditions, the site is expected to support only relatively common, suburban, human-tolerant wildlife species. While the Proposed Action will result in the loss of successional old fields, successional southern hardwoods, overgrown hedgerows, and mowed lawn (with and without trees), the resulting habitat loss and any subsequent reductions in local abundance of bird or wildlife species is not expected to be a significant adverse environmental impact.

Proposed Mitigation – Potential mitigation measures associated with impacts associated with the proposed subdivision (and new uses) on Lots 4 through 9 would include the following:

- Incorporation of the large existing trees around the edges of the mowed lawn areas into the proposed development and landscaping plan to the maximum extent practical.
- Increasing the habitat quality provided in the undeveloped portions of Lot 8 and the proposed buffer area surrounding the eastern pond by management of invasive species and/or either planting of native trees (to facilitate the development of a native forest community) or establishment of a meadow habitat dominated by native grasses and wildflowers.
- Use of native plant species in the site's landscaped areas to the maximum extent practical.

1.7. Groundwater and Surface Water Quality

<u>Groundwater Withdrawals</u>

Potential Impacts – Impacts to groundwater include those related to withdrawals and others related to infiltration. This project would result in increased withdrawal of groundwater. The project is located within the St. James Water District. The peak estimated water consumption is a maximum of 87,534 gallons per day (gpd) for domestic use plus 11,000 gpd for irrigation.

The St. James Water District indicated in a letter dated June 18, 2018 (Appendix B page B-36) that there is an existing 12-inch main on Route 25A, and there are existing 12-inch and

8-inch mains on Mills Pond Road, so a water main extension is not necessary. The Water District Superintendent did not indicate capacity concerns. A follow-up letter was sent to the District on April 19, 2019 (Appendix B pages B-32 through B-34) to confirm that the District has adequate capacity to serve the subject property.

Proposed Mitigation – Water conservation methods would reduce consumption of public water. On-site groundwater withdrawals would be limited to irrigation. The irrigation system would be tied to moisture sensors and limited to the early morning to reduce unnecessary water consumption caused by evaporation losses. Wherever possible, areas of the property would be planted with drought-tolerant plants that require minimal or no irrigation.

<u>Fertilizers and Pesticides</u>

Potential Impacts – Managed landscape areas have the potential to contaminate groundwater with fertilizers and pesticides.

Proposed Mitigation – Use of fertilizers and pesticides to maintain the natural and landscaped areas of the site would follow Suffolk County Stormwater Management Program Best Management Practices for use of fertilizers and pesticides, Part 325 of Title 6 Application of Pesticides, NYSDEC Nutrient Runoff Law and the principles of the New York State Integrated Pest Management Program.

<u>Wastewater</u>

Potential Impacts – Site development would generate approximately 68,700 gallons per day (gpd) of wastewater, for a total (including existing uses) of 87,534 gpd.

Proposed Mitigation - A state-of-the-art sewage treatment facility would be constructed within a ±4.1-acre area of the site to handle the wastewater flow from the existing and various potential land uses. The proposed sewage treatment plant would represent a substantial improvement compared to current conditions:

- There would be a reduction in total pounds of nitrogen discharged to groundwater compared to a full as-of-right build-out of the site.
- The proposed sewage treatment plant (STP) will provide an overall nitrogen reduction of ±89% in wastewater comparing STP influent (65 mg/L) to STP effluent (7 mg/L) concentrations. There will be a further reduction when accounting for nitrogen reduction through the leaching field and as the effluent traverses through the aquifer.

<u>Stormwater</u>

Potential Impacts – As planned, the proposed drainage system is designed to retain eight (8) inches of stormwater in roadway improvement areas, drainage reserve areas (DRAs), and in the northerly wetland pond. Per discussion, preliminary review, and with approval by the Town Engineer, preliminary drainage design utilizes drainage reserve areas to store five (5) inches of stormwater, and the three (3) remaining inches of the eight (8) inch design storm event will be stored in drywells in vegetated open swales along the roadside within the private right-of-way. In addition, per discussion with the NYSDEC (see Appendix B: pages B-1 through B-3), stormwater runoff flow will be conveyed to the existing northerly wetland pond in sufficient volume and frequency, so as to match the pre-development flows to the pond.

As shown on the Preliminary Grading and Drainage Plans (see pages M-3 through M-5 in Appendix M), approximately 228,712 cubic feet of stormwater runoff volume would be generated by the 8-inch storm event within the tributary shed areas comprising the proposed site infrastructure improvements and the northerly NYSDEC regulated wetland. The post-development runoff will be contained within the existing northerly State designated wetland pond, within proposed drywells within the private right-of-way, and within the three new drainage reserve areas indicated on the plans. Approximately 137,026 cubic feet of the anticipated runoff volume will be conveyed to the State wetland pond, where 75,538 cubic feet of that amount will be impounded. The surplus 61,488 cubic feet will enter an overflow structure to be constructed at the northwest corner of the pond, and conveyed through underground piping into the stormwater detention network within the tributary shed area of DRAs 1 and 2, combining with 69,940 cubic feet of stormwater runoff generated by that shed, for a total of 131,428 cubic feet, distributed between the drywells and drainage reserve areas. The 21,746 cubic feet of stormwater volume generated from the southerly portion of Road A will be contained within DRA 3. The 18,121 cubic feet of stormwater generated by the impervious cover due to the water reclamation plant will be contained within underground drywells.

Proposed Mitigation - The proposed preliminary drainage design is based on a desire to improve the quality of stormwater through natural, aesthetically pleasing on-site treatments which maximize on-site recharge. The subdivision had been planned using green infrastructure practices, incorporating the preservation of natural features and conservation, the reduction of impervious cover, and the reduction of runoff using green infrastructure techniques.

The green infrastructure techniques proposed for the preliminary subdivision were planned to utilize the natural features of the site to further runoff reduction. Existing topography, natural buffers, ponds and wetlands, and underlying granular soils provide natural characteristics which encourage the use of these techniques. Upon completion of the proposed subdivision and subsequent development, all runoff would be collected and recharged on-site. Only limited undisturbed perimeter areas would remain outside of the proposed drainage collection system area. The stormwater treatments described above in conjunction with the Grading and Drainage Plans (see pages M-3 through M-5 in Appendix M) and the future Erosion and Sediment Control Plan will constitute the Stormwater Pollution Prevention Plan for the common areas; future site plans associated with the development on individual lots will include specific Erosion and Sediment Control Plans.

1.8. Transportation – Traffic and Parking

Potential Impacts of Proposed Subdivision – The traffic impact study included the analysis of seventeen study intersections. Ten existing intersections will not be significantly affected by the proposed subdivision: delay increases (if any) will be small, and there will either be no Level of Service (LOS) change, or a nominal LOS change resulting in a LOS of A, B, C, or D, where in the applicant’s view, formal mitigation is not necessary.

The subdivision would generate fewer than 500 external trips during any of the peak hour periods that were studied (weekday AM peak hour, weekday PM peak hour, and Saturday midday peak hour).

Proposed Mitigation – Mitigation includes six of the sixteen existing study intersections; the seventeenth study intersection is a proposed driveway.

Of note, the mitigation would address known existing traffic concerns at the intersections of Stony Brook Road with Route 25A, with South Drive, and with Oxhead Road.

- Route 25A and Mills Pond Road: Signalize the intersection; restripe to provide a short westbound left turn lane.

  A signal would correct existing issues at this intersection. During a previous application for the Flowerfield property, the New York State Department of Transportation (NYSDOT) had agreed that a signal was justified under "existing 2007" conditions (see Appendix B page B-41). The current traffic study confirms these findings, so the subdivision includes the traffic signal.
- Route 25A and Stony Brook Road: Signalize the intersection; shift the southbound left turn stop line, install a yield sign for the northbound right turn lane (a safety measure), and stripe the westbound right turn lane to be perpendicular with Route 25A. An alternate solution under consideration (directed by the NYSDOT) is a roundabout with corresponding roadway reconfiguration on the approaches. Final determination of the intersection improvements/mitigation will be determined by the NYSDOT.
- Route 347 and Moriches Road: Implement minor signal retiming by shifting 2-3 seconds of green time from one signal phase to another. As directed by NYSDOT, also add a second eastbound left turn lane (analyzed in the traffic study as 75 feet long).
- Stony Brook Road and South Drive: Add a short southbound left turn lane and make minor adjustments to the existing traffic signal (add left turn arrows and shift other existing signal faces for proper display/visibility).
- Stony Brook Road and Oxhead Road: Add a short southbound left turn lane and make minor adjustments to the existing traffic signal (add a left turn arrow and shift other signal faces for proper display/visibility).
- Stony Brook Road and Route 347: The applicant proposes to implement minor signal retiming by shifting 2-3 seconds of green time from one phase to another. Alternately (pending State and Town review and feedback), the applicant could further improve/mitigate the intersection by providing a minor widening on northbound Stony Brook Road to add a short right turn lane and re-designate the northbound lanes, with minor signal modifications to add right turn arrows in each direction. This alternate mitigation is not expected to incur property acquisition.

Based on available information to date (Suffolk County GIS data[7] and New York State aerials[8]), the proposed lane changes in the traffic study can be achieved within the extents of existing pavement (without widening or acquiring property). As a matter of course, the developer would be charged with implementing off-site traffic mitigation, including surveying the property lines and physical features around individual intersections. Minor widening, if required, should be feasible if necessary; it simply is not anticipated. The specific intersection geometries will be developed during the engineering design phase, which will follow the Town of Brookhaven, Town of Smithtown, and NYSDOT making the final determinations as to the mitigation measures within their jurisdictional control.

Specific to the intersections on Route 25A, the mitigation at Route 25A-Mills Pond Road should be considered feasible because NYSDOT wrote in 2007 and 2010 that a signal is warranted. Either mitigation option at Route 25A-Stony Brook Road (signal or roundabout) should be considered feasible as well, because the NYSDOT is in the process of selecting a roundabout or traffic signal improvement project as follow-up to the *Route 25A-Three Village Area: Visioning Report* (see Appendix F page F-318). The mitigation at Route 347-Moriches Road was dictated by NYSDOT at a technical meeting, and should therefore also be considered feasible.

1.9. Community Services

Potential Impacts of Proposed Subdivision – The current site requires police, fire, and emergency response, as would the proposed subdivision uses. The potential assisted living units could have a higher likelihood of emergency response/ambulance services, but the applicant notes the very close proximity to Stony Brook University Medical Center in case emergencies arise. Internal roads would be privately owned, and the Town would not be responsible for road maintenance, snow removal, street lighting, or solid waste removal. An increase in energy consumption would occur as a result of the development. However, at the preliminary subdivision phase, it is premature to develop specific load calculations for electricity, heating oil, and/or natural gas. Gyrodyne and/or the eventual developers will coordinate new service connections with National Grid and PSEG-LI as required. No children will reside at the site, so the school district is expected to benefit from increased tax revenues and no added expenses.

Proposed Mitigation – It is the Applicant's belief that no mitigation is required because the subdivision elements minimize Town involvement (no new public streets to maintain), there would be no new school-aged children living at the site, and there is no indication from community service providers regarding an inability to serve the proposed land uses.

1.10. Taxes/Economic Impacts

Potential Impacts of Proposed Subdivision – The proposed Gyrodyne subdivision will bring significant economic and tax benefits (increased revenues and jobs) to the Long

[7] Suffolk County Economic Development & Planning, Cartography & GIS Division/Suffolk County Real Property Tax Service Agency. Accessed April 2017.
[8] NYS Office of Information Technology Services, GIS Program Office, Digital Ortho-imagery Program (NYSDOP). *2016 imagery in Suffolk County*. Accessed April 2017.

Island region, the Town of Smithtown, and the community in which it is located. These benefits will begin during the development phase and will increase once the community is completed and fully occupied.

During construction, the subdivision will generate an estimated ±1,500 construction worker jobs, and at full occupancy, the subdivision will generate an estimated ±1,080 net new jobs. According to the applicant's economic analysis (see Appendix H), the anticipated "ongoing impacts from operations at full build-out" will total $128.8 million per year in addition to the existing light industrial uses and catering hall. Most of this money will remain in the local Long Island economy and will undergo several rounds of "respending," so the ultimate beneficial impact will be a multiple of the original expenditure. The applicant believes this has the potential to benefit multiple industries, given this "respending" effect.

As calculated herein, permanent economic benefits to the Town and the community will increase by over $3 million when the subdivision is completed and the buildings are fully occupied, based on the Applicant's calculated net tax benefits to the affected jurisdictions. The proposed subdivision uses are likely to generate an estimated $3.77 million net new tax revenue (total anticipated revenue over $4.1 million annually). Net revenue includes $1,310,000 to the Town of Smithtown, and other entities, and almost $2.9 million annually to the Smithtown Central School District, with zero added costs to the School District because there will be no school-aged children living at the property.

Proposed Mitigation – Impacts are positive (meaning, local taxing entities will receive more new revenue than the additional costs, if any, they would incur) so it is the Applicant's belief that no mitigation is required.

1.11. Land Use and Open Space Preservation

Potential Impacts – There is no proposed change of zone, and any potential land use on the proposed subdivision will meet Light Industrial (LI) zoning requirements. The proposed land use mix also provides synergies with the existing catering hall and Stony Brook University. Additionally, the proposed subdivision layout maintains a 200-foot wide natural buffer along NYS Route 25A (North Country Road), a 100-foot-or-wider buffer around the existing ponds, no change to buffers on Mills Pond Road, and designated areas of managed landscaping and open space. Finally, the parking plan incorporates landbanking and shared parking to minimize the number of newly paved parking spaces, which helps to maintain open space.

Overall, the Proposed Action will preserve over 36.5 acres of open space on the property (48.7% of the site's land area).

Proposed Mitigation – It is the Applicant's belief that no mitigation is required because the buffer along Route 25A will be maintained, the subdivision incorporates green/open space and landbanked parking, and the overall site will remain comprised of over 35 acres of open space.

1.12. Air Quality

Potential Impacts of Proposed Subdivision – During construction, there will be multiple erosion and sediment control measures implemented and supervised by inspection personnel, which will minimize short-term construction phase impacts. The proposed subdivision represents fewer potential trips than an as-of-right all-medical-office use (no subdivision required), and it represents a smaller truck component than an as-of-right expanded light industrial alternative during weekday peak hours. Traffic mitigation will address existing "Level of Service F" congestion at certain intersections (most notably, on Stony Brook Road at Route 25A, at South Drive, and at Oxhead Road). Additionally, the proposed land uses will not create new point sources for air pollution. The subdivision is therefore not expected to create air quality impacts.

Proposed Mitigation – It is the Applicant's belief that no mitigation is required, apart from the erosion and sediment control measures to be inherently implemented as part of construction, because as-of-right uses generate more traffic, because mitigation will address existing LOS F operation at multiple intersections, and because there will be no new point sources for air pollution.

1.13. Noise

Potential Impacts of Proposed Subdivision – During construction, all Town noise ordinances will be followed to minimize short-term construction phase impacts. The proposed subdivision reduces the potential numbers of total weekday peak hour trips and truck trips compared to the as-of-right alternative (expanded light industrial use). The character of the potential land uses will produce periodic exterior noise, but generally little to no new sounds overnight or on weekends. The building setbacks are significantly far enough removed from Mills Pond Road, Route 25A, and existing off-site buildings that there is no anticipated significant increase in noise levels.

Proposed Mitigation – It is the Applicant's belief that no mitigation is required because the subdivision will reduce potential traffic generation compared to as-of-right development and because buildings will be set back far from the adjacent streets. The intended land uses do not typically generate activity/noise late at night, and the potential new office land use would be relatively inactive on weekends.

1.14. Visual Impacts

Potential Impacts of Proposed Subdivision – The Map of Flowerfield has been designed with minimal disturbance and visual change to the entire road frontage of Route 25A and Mills Pond Road. Along the 0.51 miles of road frontage of Route 25A, only 106 feet will be disturbed for the construction of a limited access (right turn-in and right turn-out) driveway into the Flowerfield campus.

Along Mills Pond Road, one existing site driveway will be widened and improved with disturbance limited to the immediate area. A key focus of analyzing potential visual impacts was determining to what extent future buildings would be visible from Route 25A and Mills Pond Road. Within the Flowerfield campus, the subdivision plan incorporates multiple "green" approaches as further described in this section. The site development plans that will eventually be prepared for individual lots would be encouraged to build upon the below design approach, with extensive use of landscaping treatments and proper setbacks to create/maintain the visual buffers around existing/new buildings.

Proposed Mitigation – As shown in the visual simulation (provided in Appendix K), the applicant anticipates there will be new planting along portions of Route 25A, with an evergreen and ornamental tree screen behind existing trees. This is anticipated to maintain the existing visual character along this roadway. For most of the property frontage, the views will be almost indistinguishable between the current and post-subdivision conditions.

At the proposed Route 25A driveway, there will be an interruption or gap in the existing landscape. The proposed buildings will not be visible from the road, and the proposed plantings (a combination of mature deciduous and evergreen plantings) will provide an aesthetic infill of new plantings across and within the entrance area. The proposed campus signage is envisioned to be a natural stone material, blending into the landscape.

The lighting has not yet been designed, but in general terms, roadway/walkway lighting will be designed for safety, and supplemental lighting will highlight visually appealing elements of the architecture and landscaping.

Additionally, the proposed building heights will comply with Town ordinance limits, and setbacks will be at least 200 feet from Route 25A and 100 feet from Mills Pond Road.

1.15. Historic and Cultural Resources

Potential Impacts of Proposed Subdivision – There are several historic sites and historic districts within the vicinity of the site. The proposed buildings and setbacks are designed to respect the historic character of the area. The Institute of Long Island Archeology had conducted extensive Stage 1A, Stage 1B, and Stage 2 archaeological studies of the Flowerfield property for the 2008 proposed DEIS. This extensive survey's only finding was a stairway that might lead to intact cellar deposits.

Proposed Mitigation – The area delineated by the archaeological studies is within the 200-foot buffer along NYS Route 25A (North Country Road) near the Mills Pond Road/Route 25A intersection. The area delineated by the archaeological studies will not be modified, so the applicant believes no additional mitigation is necessary. All disturbances within the 200-foot Route 25A buffer will be located to the north and west of this location and limited to the construction of the proposed site driveway, drainage reserve areas and STP leaching areas. The drainage reserve areas and STP leaching areas will be screened by existing vegetation and supplemented with additional plantings. While there will be a change in visual character along the Route 25A Historic Corridor, the visual analysis demonstrates that the change is mitigated by extensive landscape re-vegetation, set back monument signs constructed of natural materials, and employment of a contextual design aesthetic.

1.16. Construction Impacts

Potential Impacts of Proposed Subdivision – Like any large construction project, the future construction associated with this subdivision would have short-term environmental impacts which can include soil erosion, noise, traffic disruption, and dust. Construction will not necessarily occur on each new lot at the same time; a reasonable construction timeframe estimate is three to four years. Noise and vibration would be generated from construction and worker traffic, heavy equipment operation, and delivery vehicles. There would be far fewer site-generated trips associated with construction than there would be with the full build-out of the subdivision.

Proposed Mitigation – All construction will abide by the Town noise ordinance which prohibits "drilling, earthmoving, excavating, or demolition work between the hours of 6:00 p.m. and 7:00 a.m. the following day on weekdays or at any time on weekends or legal holidays.[9]" Heavy equipment operation or other construction activity that might be accompanied by "loud or disturbing noise" could be subject to further time restrictions, subject to the direction of the Building Department. A Stormwater Pollution Prevention Plan (SWPPP) will be utilized to control erosion and minimize the transfer of site debris onto local roads. Erosion and Sediment Control elements may include silt fences, hay bales, a gravel or crushed-stone construction entrance/exit with a wash-down area, and/or sandbags to protect inlets. Work Zone Traffic Control (WZTC) plans will be implemented to ensure continued two-way vehicle and pedestrian access around the property. Typical WZTC elements include wayfinding and advance lane/shoulder closure signage (e.g. "Shoulder Closed Ahead"), construction fencing, barricades (possibly with flashing beacons/temporary lighting), flaggers to help direct traffic, etc.

1.17. Project Alternatives

The following alternatives represent various land use combinations that demonstrate the range of potential redevelopment and the corresponding potential impacts.

The alternatives were developed, in part, based on the applicant's desire to maintain similar numbers of site-generated peak hour off-site trips. As a result, the same off-site traffic mitigation measures would accommodate any of the alternatives, which have similar off-site trip generation. In fact, traffic could be smaller for any alternative if the office space becomes general or R&D rather than medical office (which generates more traffic).

Of note, this study is not intended to specify an exact number of site trips during each peak hour. Rather, the off-site trips for the Proposed Action and for each alternative yield a reasonable order-of-magnitude range of off-site peak hour trips that result in similar traffic flow conditions. Unless a future application at the Flowerfield property deviates significantly from the numbers in this study (at least 5-10% more off-site trips than what is analyzed herein), it would not trigger a traffic-related reason for further, post-DEIS study.

Additionally, each alternative should be able to provide sufficient parking, with similar or reduced levels of shared and/or landbanked spaces compared to the Proposed Action (which the applicant believes maximizes both of these sustainable design techniques). The different alternatives have different building sizes. To compare alternatives with respect to parking, each 350 s.f. of increased/reduced building space corresponds to one parking space. "350 s.f. per space" is a standard, well-accepted average design ratio that includes

[9] Town Code §207-2(5), Construction Noise Prohibitions accessed via http://ecode360.com/15100108

room for the parking space, the adjacent drive aisle, end islands, and handicapped stalls and aisles. For example, if an alternative has 10,000 s.f. smaller buildings, it leaves room for ±28 more parking spaces since $^{10,000}/_{350}$ = 28.6 (the result gets rounded down).

Alternatives 4 and 5, marked with an asterisk (*) do not represent the applicant's intent for the property: there would be little to no synergy with Stony Brook University, no complementary use with the Flowerfield catering hall, no assisted living housing options (which the Town's unadopted Draft CPU states is needed), and more off-site traffic generation or a higher truck component (and associated off-site impacts). These alternatives are discussed in this document solely as a frame of reference with respect to certain potential impacts of the proposed subdivision.

Alternative 6 represents a "public acquisition" alternative if the Town or County subdivides, acquires, and preserves the vacant area as public open space.

Alternative 7 (complies with the unadopted Draft CPU's 50% open space and 300-foot Route 25A buffer, subject to a Suffolk County Health Department variance for the setback of the STP expansion area from the LIRR tracks): 125-room hotel, 128,000 s.f. medical office, 240 assisted living units.

Alternative 8 represents the same land use mix as the Proposed Action with the railroad crossing re-opened between Gyrodyne and the Stony Brook University Research and Development Park, to analyze the possible/future use of the crossing. Gyrodyne has been actively coordinating the proposed re-opening of the railroad crossing. While significant progress has been made in this effort, including support from Stony Brook University, there is still a degree of uncertainty as to when this might be accomplished. Timing associated with LIRR and NYSDOT involvement and with one or more public hearings required to secure an approval results in an uncertain timeframe. Accordingly, Gyrodyne has modified the proposed Preliminary Subdivision Plan to clarify the railroad crossing as a "possible/future re-opening of railroad crossing".

Alternative 9 represents the Proposed Action and an STP with expanded capacity to accommodate flow from the St. James Avenue Business District (currently estimated at 69,600 gallons per day).

Alternative 10 represents a reduced-lot subdivision with six lots, less roadway surface area, a 115-room hotel, 183,150 s.f. of technology office space, and 280 assisted living units.

Table 1-1: Summary of Alternatives

Name	General Description
No Action	Continued use of the existing light industrial buildings and catering hall, with the remainder of the site left vacant
Proposed Action	9-Lot subdivision including the existing light industrial buildings and catering hall plus: • 150-room hotel • 130,000 s.f. of medical, general, or R&D-tech offices • 220 assisted living units

Name	General Description
Alternative 1	Subdivision including the existing light industrial buildings and catering hall plus: • 100-room hotel • 150,000 s.f. of medical offices • 150 assisted living units
Alternative 2	Subdivision including the existing light industrial buildings and catering hall plus: • 150,000 s.f. of medical offices • 50,000 s.f. of general offices • 192 assisted living units
Alternative 3	Subdivision including the existing light industrial buildings and catering hall plus: • 120-room hotel • 136,000 s.f. of medical offices • 250 assisted living units
Alternative 4*	No subdivision, retain the existing light industrial buildings and catering hall, plus: • 244,000 s.f. of medical offices
Alternative 5*	No subdivision, retain the existing light industrial buildings and catering hall, plus: • 382,500 s.f. of light industrial uses as of right
Alternative 6	Public Acquisition with Town or County subdividing property and preserving the vacant area as public open space
Alternative 7	Subdivision complying with the unadopted Draft CPU's 50% open space and 300-foot Route 25A buffer (subject to a Suffolk County Health Department variance for the setback of the STP expansion area from the LIRR tracks): • 125-room hotel • 128,000 s.f. medical office • 240 assisted living units
Alternative 8	Same 9-Lot subdivision as the Proposed Action, with the LIRR crossing re-opened
Alternative 9	Same 9-Lot subdivision as the Proposed Action, with an expanded capacity sewage treatment plant (STP).
Alternative 10	Reduced lot subdivision including three out of the four existing light industrial buildings and catering hall plus: • 115-room hotel • 183,150 s.f. of technology/office space • 280 assisted living units

1.18. Conclusions

The following conclusions are the opinion of the Applicant.

Based upon the analyses herein, and summarized in Table 1-2 starting on page 1-16, the Applicant believes the proposed subdivision is not expected to have significant impacts of the environment. The proposed plan has the advantages of providing synergy with Stony Brook University and the Flowerfield catering hall, a significant increase in tax revenues, and no impact on the local school system (by increasing tax revenues without adding school children).

Table 1-2: Comparison of Proposed Subdivision and Alternatives

Note: Where not specified, the office space could be General Office (e.g. professional office) or Medical Office (relating to medical diagnosis and treatment). Traffic and water-wastewater calculations are based on medical office to be conservative; general office use would reduce trips and water and sanitary compared to what is shown in this table

DESCRIPTION	No Action (Existing Condition)	Proposed Action	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8	Alternative 9	Alternative 10
POTENTIAL IMPACT	Existing Caterer and Light Industrial (to remain in the subdivision alternatives)	150-room hotel, 130,000 s.f. office, 220 assisted living units	100-room hotel, 150,000 s.f. office, 150 assisted living units	150,000 s.f. medical office, 50,000 s.f. general office, 192 assisted living units	120-room hotel, 136,000 s.f. office, 250 assisted living units	244,000 s.f. medical offices	382,500 s.f. light industrial	Acquisition for Public Open Space	125-room hotel, 128,000 s.f. medical office, 240 assisted living units	150-room hotel, 130,000 s.f. office, 220 assisted living units (RR Crossing opened)	150-room hotel, 130,000 s.f. office, 220 assisted living units (expanded STP capacity)	115-room hotel, 183,150 s.f. general office, 280 assisted living units
LAND USE, ZONING, AND COMMUNITY CHARACTER												
Land Use	Industrial, caterer	Industrial, caterer, hotel, medical office, assisted living	Industrial, caterer, hotel, medical office, assisted living	Industrial, caterer, medical and general office, assisted living	Industrial, caterer, hotel, medical office, assisted living	Industrial, caterer, medical office	Industrial, caterer	Public Open Space	Industrial, caterer, hotel, medical office, assisted living	Industrial, caterer, hotel, medical office, assisted living	Industrial, caterer, hotel, medical office, assisted living	Industrial, caterer, hotel, tech/office, assisted living
Zoning	LI	LI	LI	LI	LI	LI	LI	LI	LI	LI	LI	LI
Community Character: Compatibility with the adjacent land uses	No Change	Compatible with residences and Stony Brook University	Compatible with residences and Stony Brook University	Compatible with residences and Stony Brook University	Compatible with residences and Stony Brook University	Compatible with Stony Brook Medical	Not compatible with residences or Stony Brook University	Compatible with residences and Stony Brook University	Compatible with residences and Stony Brook University	Compatible with residences and Stony Brook University	Compatible with residences and Stony Brook University	Compatible with residences and Stony Brook University
Synergy with Stony Brook University	No Change	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Synergy with Caterer	No Change	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Improve the visual appearance and views of the area to the surrounding community	No Change	Improvement in visual appearance	Improvement in visual appearance	Improvement in visual appearance	Improvement in visual appearance	No improvement	No improvement	Improvement in visual appearance	Improvement in visual appearance	Improvement in visual appearance	Improvement in visual appearance	Improvement in visual appearance
Landscaping	34.84 acres	38.97 acres	39.26 acres	39.23 acres	38.92 acres	40.17 acres	40.17 acres	36.73 acres	39.20 acres	38.97 acres	38.97 acres	41.56 acres
Air Quality	No Change	No significant impact	No significant impact	No significant impact	No significant impact	No significant impact	Potential impact	No significant impact	No significant impact	No significant impact	No significant impact	No significant impact
Noise	No Change	Similar noise	Similar noise	Similar noise	Similar noise	Similar noise	More noise	Similar noise	Similar noise	Similar noise	Similar noise	Similar noise
COMMUNITY SERVICES AND UTILITIES												
Estimated Water Demand (Potable Water)	18,834 gpd	87,534 gpd	72,660 gpd	59,280 gpd	86,460 gpd	43,234 gpd	34,134 gpd	18,834 gpd	85,610 gpd	87,534 gpd	87,534 gpd	75,110 gpd
Estimated Water Demand (Irrigation)	6,000 gpd	11,000 gpd	9,000 gpd	9,000 gpd	9,000 gpd	8,000 gpd	11,000 gpd	7,000 gpd	11,000 gpd	11,000 gpd	11,000 gpd	12,000 gpd
Estimated Wastewater Flow/Treatment Method	18,834 gpd/Utilize On-site Septic System	87,534 gpd/Connect to New 100,000 gpd Treatment Plant	72,660 gpd/Connect to New 100,000 gpd Treatment Plant	59,280 gpd/Connect to New 100,000 gpd Treatment Plant	86,460 gpd/Connect to New 100,000 gpd Treatment Plant	43,234 gpd/Utilize On-site Septic System	34,134 gpd/Utilize On-site Septic System	18,834 gpd/Utilize On-site Septic System	85,610 gpd/Connect to New 100,000 gpd Treatment Plant	87,534 gpd/Connect to New 100,000 gpd Treatment Plant	157,134 gpd/Connect to New 171,000 gpd Treatment Plant	75,110 gpd/Connect to New 100,000 gpd Treatment Plant
Schoolchildren Range	0	0	0	0	0	0	0	0	0	0	0	0
New Full Time Employment (Construction Phase)	0	1,507	1,279	1,298	1,531	969	781	10	1,474	1,507	1,507	1,518
New Full Time Employment (Build-out)	0	1,078	1,078	1,171	1,106	1,349	731	6	1,065	1,078	1,078	1,085
School Tax	$ 270,000	$ 2,850,000	$ 2,420,000	$ 2,550,000	$ 2,930,000	$ 1,860,000	$ 760,000	$0	$ 2,880,000	$ 2,850,000	$ 2,850,000	$ 3,170,000

Note: Where not specified, the office space could be General Office (e.g. professional office) or Medical Office (relating to medical diagnosis and treatment). Traffic and water-wastewater calculations are based on medical office to be conservative; general office use would reduce trips and water and sanitary compared to what is shown in this table

DESCRIPTION	No Action (Existing Condition)	Proposed Action	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8	Alternative 9	Alternative 10
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General Tax	$ 130,000	$ 1,310,000	$ 1,110,000	$ 1,170,000	$ 1,350,000	$ 860,000	$ 350,000	$0	$ 1,320,000	$ 1,310,000	$ 1,310,000	$ 1,455,000
Total Tax	$ 400,000	$ 4,160,000	$ 3,530,000	$ 3,720,000	$ 4,280,000	$ 2,720,000	$ 1,110,000	$0	$ 4,200,000	$ 4,160,000	$ 4,160,000	$ 4,625,000
Net New Total Tax	0	$ 3,760,000	$ 3,130,000	$ 3,320,000	$ 3,880,000	$ 2,320,000	$ 710,000	$0	$ 3,800,000	$ 3,760,000	$ 3,760,000	$ 4,225,000
TRANSPORTATION												
New AM Peak Hour Trips	0	357	345	385	354	409	260	0	343	357	357	318
New PM Peak Hour Trips	0	538	533	555	538	697	241	0	517	538	538	344
New Saturday Peak Hour Trips	0	324	295	260	319	294	157	0	310	324	324	256
Internal Trips with Stony Brook University	No	No	No	No	No	No	No	No	No	Yes	No	No
Existing industrial truck and vehicular traffic	AM hours: 60 to 170 trips including 13 to 49 (20% to 38%) trucks PM hours: 70 to 178 trips, including 14 to 31 (11% to 27%) trucks Saturday hours: 56 to 105 trips, 0 trucks	Same as No Action (Existing uses remain)	Same as No Action (Existing uses remain)	Same as No Action (Existing uses remain)	Same as No Action (Existing uses remain)	Same as No Action (Existing uses remain)	Same as No Action (Existing uses remain)	Same as No Action (Existing uses remain)	Same as No Action (Existing uses remain)	Same as No Action (Existing uses remain)	Same as No Action (Existing uses remain)	Same as No Action (Existing uses remain)
Additional Truck Trips (Post build-out)	0	±5% of the additional trips: 16 to 27	±5% of the additional trips: 15 to 27	±5% of the additional trips: 13 to 28	±5% of the additional trips: 16 to 27	±5% of the additional trips: 15 to 35	±30% of the additional trips: 47 to 78	No increase beyond maintenance trucks	±5% of the additional trips: 16 to 26	±5% of the additional trips: 16 to 27	±5% of the additional trips: 16 to 27	±5% of the additional trips: 13 to 17
Additional Industrial Traffic	0	0	0	0	0	0	47 to 78	0	0	0	0	0
NITROGEN LOADING												
Nitrogen Contribution (1b/acre/yr)	33.0	32.4	31.7	31.7	31.7	87.6	69.4	33.4	32.3	32.4	48.8	33.0

Figure 1-1: Location Map

Map Source: N.Y. Statewide Digital Orthoimagery Program (NYSDOP) accessed at https://orthos.dhses.ny.gov/

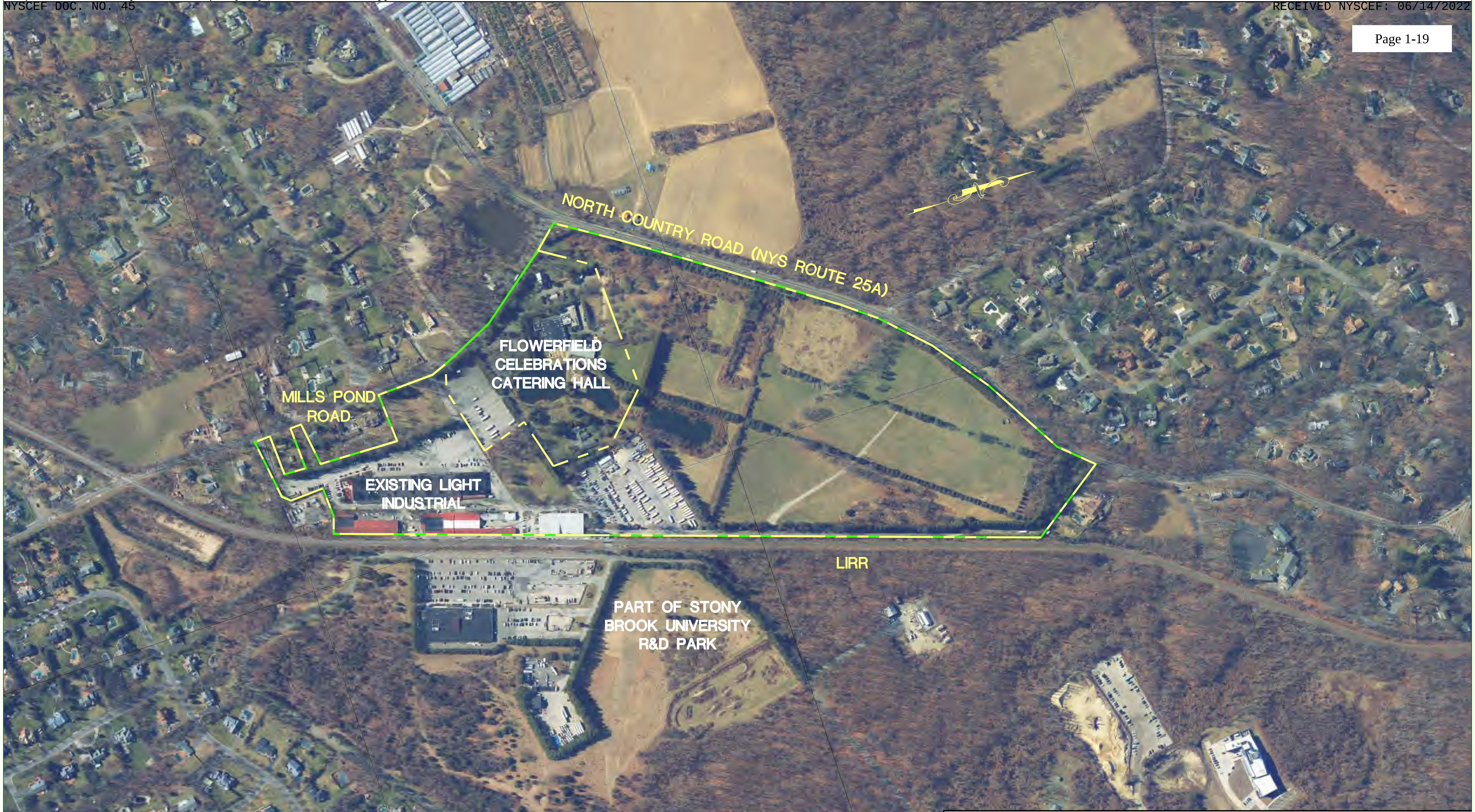

FIGURE 1-2
AERIAL MAP

CAMERON ENGINEERING & ASSOCIATES, LLP
177 Crossways Park Drive, Woodbury, NY 11797 T: (516) 827-4900
1411 Broadway, Suite 610, New York, NY 10018 T: (212) 324-4000
303 Tarrytown Road, 1st Floor, White Plains, NY 10603 T: (914) 721-8300
Corporate Seal Initiated 1996 State of New York
www.Cameronengineering.com
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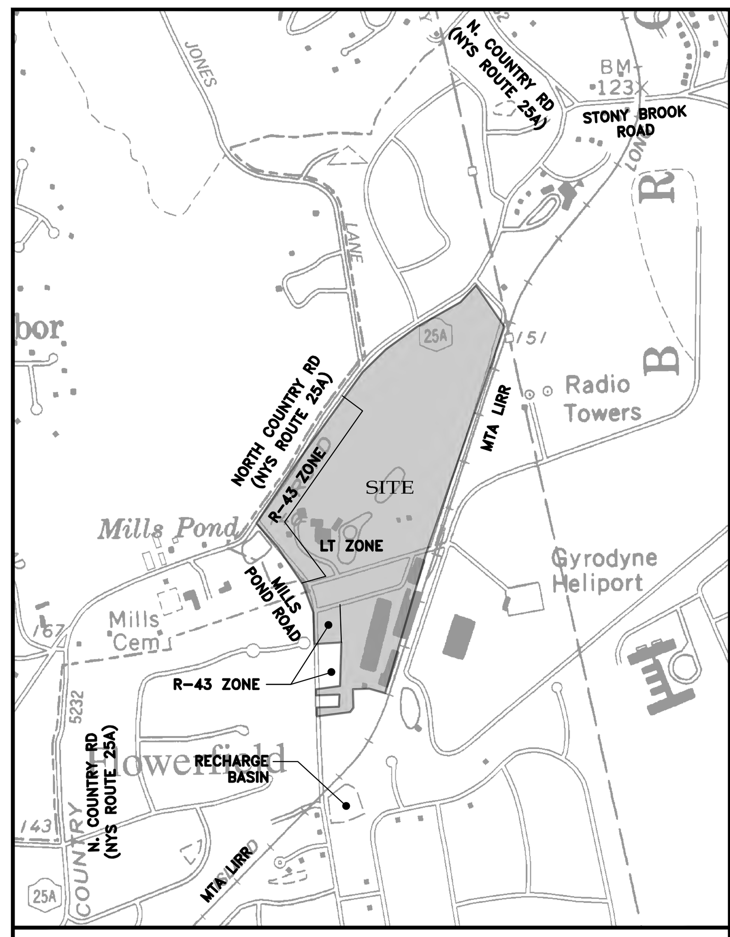


KEY LOCATION MAP
(SCALE 1"=600'±)

SITE DATA:

APPLICANT / OWNER INFORMATION;
GYRODYNE LLC
ONE FLOWERFIELD–SUITE 24
SAINT JAMES, NY 11780

ZONING CLASSIFICATION:

LI DISTRICT

MIN. LOT AREA	80,000 SF
MIN. FRONT YARD	50 FEET
MIN. SIDE & REAR YARD	6 FEET
MIN. BUFFER TO RESIDENTIAL DISTRICT	100 FEET

R–43 DISTRICT

MIN. LOT AREA	43,560 SF
MIN. LOT FRONTAGE AT SETBACK	150 FEET
MIN. ROAD FRONTAGE	40 FEET
MIN. FRONT YARD	60 FEET
MIN. REAR YARD	100 FEET
MIN. SIDE YARD WIDTH	ANY ONE 24 FEET, BOTH 60 FEET

AREA OF SITE:
74.98 AC

65.41 AC. IN ZONING DISTRICT LI
9.57 AC. IN ZONING DISTRICT R–43

TOTAL NUMBER OF PROPOSED LOTS: 9

SCTM:
DISTRICT 0800, SECTION 40, BLOCK 2, TAX LOT 4, TAX LOT 13.3, TAX LOT 13.4, TAX LOT 14, & TAX LOT 15

DISTRICTS:
SCHOOL DISTRICT – SMITHTOWN CENTRAL SCHOOL DISTRICT
WATER DISTRICT – ST. JAMES WATER DISTRICT
FIRE DISTRICT – ST. JAMES FIRE DISTRICT
POLICE DISTRICT – SUFFOLK COUNTY POLICE DEPARTMENT
POST OFFICE – ST. JAMES

CUT/FILL:
CUT VOLUME: 37,897 CY
FILL VOLUME: 773 CY

NET TOTAL: 37,124 CY (CUT)

REFER TO THE PRELIMINARY SUBDIVISION ENGINEERING PLANS FOR ADDITIONAL INFORMATION ON THE PROPOSED DRAINAGE SYSTEM DESIGN, ROADWAY ALIGNMENT AND GRADING, SANITARY SEWER SYSTEM DESIGN, WATER MAIN DISTRIBUTION ALIGNMENT, AND TREE PRESERVATION AND REMOVALS.

LEGEND:

PROPERTY BOUNDARY
PROPOSED LOT LINE — S35° 00' 12.18"W 199.00'
PROPOSED LOT NUMBER & PROPOSED LOT AREA — 7 3.19 AC.
EASEMENT LINE — S35° 00' 12.18"W 199.00'
PRIVATE PROPERTY ROW
DRAINAGE RESERVE AREAS
PROPOSED ROADWAY LIMITS
PROPOSED ROADWAY CENTER LINE
LIMITS OF SEWAGE TREATMENT PLANT EASEMENT
WATER/SEWER UTILITY EASEMENT
SEWER UTILITY EASEMENT
PROPOSED ASPHALT PAVING WITHIN LOTS
EXISTING ASPHALT PAVEMENT TO REMAIN
ZONING DISTRICT BOUNDARY — R-43 / LI
STORMWATER TRIBUTARY SHED LINE
TRIBUTARY SHED NUMBER — 1
SOIL BORING LOCATION

STRUCTURE TABLE

STRUCTURE NAME:	RIM/GRATE ELEV:	PIPES:
CB – 1	155.26	12" HDPE INV IN =151.01 (N) 12" HDPE INV OUT =151.01 (SE)
CB – 2	155.11	12" HDPE INV OUT =151.08 (S)
CB – 3	155.12	18" HDPE INV IN =151.08 (S) 18" HDPE INV OUT =151.08 (N)
CB – 4	155.25	18" HDPE INV OUT =151.25 (N)
CB – 5	154.39	18" HDPE INV OUT =150.92 (W)
CB – 6	154.35	18" HDPE INV IN =150.49 (E) 18" HDPE INV IN =150.49 (S) 18" HDPE INV OUT =150.49 (N)
CB – 7	153.35	18" HDPE INV OUT =148.85 (NW)
CB – 8	153.35	18" HDPE INV IN =148.45 (SE) 18" HDPE INV IN =148.65 (S) 24" HDPE INV OUT =148.45 (NW)
CB – 9	151.77	18" HDPE INV IN =148.33 (NE) 18" HDPE INV OUT =148.33 (SE)
CB – 10	144.59	24" HDPE INV IN =141.00 (SW) 24" HDPE INV OUT =141.00 (NE)
CB – 11	144.67	24" HDPE INV IN =141.10 (E) 24" HDPE INV OUT =141.00 (NE) 24" HDPE INV OUT =141.00 (S)
CB – 12	156.77	18" HDPE INV IN =151.24 (E) 18" HDPE INV OUT =151.24 (SW)
CB – 13	158.75	18" HDPE INV OUT =152.36 (W)
CB – 14	154.90	18" HDPE INV IN =147.91 (NW) 24" HDPE INV OUT =147.91 (SW)
CB – 15	155.00	24" HDPE INV IN =147.78 (NE) 24" HDPE INV OUT =147.78 (SW)
CB – 16	151.94	18" HDPE INV IN =148.67 (NW) 18" HDPE INV IN =148.67 (NE) 18" HDPE INV OUT =148.67 (SW)
CB – 17	151.93	18" HDPE INV OUT =148.80 (SE)
CB – 18	153.13	18" HDPE INV IN =149.22 (NW) 18" HDPE INV OUT =149.22 (SW)
CB – 19	153.18	18" HDPE INV OUT =149.35 (SE)
CB – 20	154.00	15" HDPE INV OUT =148.73 (S)
CB – 21	154.70	15" HDPE INV OUT =149.41 (SW)
CB – 22	154.37	15" HDPE INV IN =149.29 (NE) 15" HDPE INV OUT =149.24 (W)
CB – 23	150.03	15" HDPE INV OUT =144.74 (NW)
CB – 24	150.03	15" HDPE INV IN =144.60 (SE) 15" HDPE INV OUT =144.59 (W)
DMH– (21)	151.66	15" HDPE INV OUT =150.23 (E)
DMH – 1	155.31	18" HDPE INV IN =150.36 (S) 18" HDPE INV OUT =150.36 (N)
DMH – 2	155.49	18" HDPE INV IN =149.43 (S) 18" HDPE INV OUT =149.33 (N)
DW – 1	150.46	18" HDPE INV IN =144.58 (S) 18" HDPE INV OUT =144.58 (NW)

STRUCTURE TABLE

STRUCTURE NAME:	RIM/GRATE ELEV:	PIPES:
DW – 2	150.09	18" HDPE INV IN =144.38 (SE) 18" HDPE INV OUT =144.38 (NW)
DW – 3	149.72	18" HDPE INV IN =144.18 (SE) 18" HDPE INV OUT =144.18 (NW)
DW – 4	149.46	18" HDPE INV IN =143.97 (SE) 18" HDPE INV OUT =143.98 (NW)
DW – 5	149.67	18" HDPE INV IN =143.77 (SE) 18" HDPE INV OUT =143.77 (NW)
DW – 6	149.08	18" HDPE INV IN =143.57 (SE) 18" HDPE INV OUT =143.57 (NW)
DW – 7	148.23	18" HDPE INV IN =143.37 (SE) 18" HDPE INV OUT =143.37 (NW)
DW – 8	147.86	18" HDPE INV IN =143.17 (SE) 18" HDPE INV OUT =143.17 (NW)
DW – 9	147.48	18" HDPE INV IN =142.96 (SE) 18" HDPE INV OUT =142.96 (NW)
DW – 10	146.99	18" HDPE INV IN =142.51 (SE) 24" HDPE INV OUT =142.51 (W)
DW – 11	150.36	
DW – 12	148.19	
DW – 13	156.49	15" HDPE INV OUT =149.67 (W)
DW – 14	156.21	15" HDPE INV IN =154.85 (N) 15" HDPE INV OUT =148.19 (SE)
DW – 15	156.46	15" HDPE INV IN =147.99 (NW) 15" HDPE INV IN =148.83 (NE) 15" HDPE INV IN =154.56 (E)
DW – 16	155.51	15" HDPE INV IN =149.13 (E) 15" HDPE INV OUT =149.13 (SW)
DW – 17	157.46	15" HDPE INV IN =149.75 (W) 15" HDPE INV OUT =149.75 (NE) 15" HDPE INV OUT =149.75 (SE)
DW – 18	156.77	15" HDPE INV IN =149.55 (SW)
DW – 19	157.04	15" HDPE INV IN =149.55 (NW)
DW – 20	151.32	15" HDPE INV IN =144.51 (E) 15" HDPE INV OUT =144.51 (SW)
DW – 21	152.66	15" HDPE INV IN =144.31 (NE)
HEADWALL – 1	152.12	12" HDPE INV IN =150.78 (NW)
HEADWALL – 2	152.42	18" HDPE INV IN =150.70 (NE)
HEADWALL – 3	143.08	24" HDPE INV IN =140.84 (SW)
HEADWALL – 4	143.07	24" HDPE INV IN =140.83 (N)
HEADWALL – 5	148.89	24" HDPE INV IN =146.65 (SE)
HEADWALL – 6	148.74	24" HDPE INV IN =146.50 (NE)
OVERFLOW STRUCTURE	150.35	18" HDPE INV OUT =146.00 (N)

DRAINAGE CALCULATIONS

TOTAL DRAINAGE SHED AREA OF PROPOSED IMPROVEMENTS: 825,271 SF

A. SUB–SHED #1 (DRA 3):

SUB–SHED TRIBUTARY AREA: 79,767 SF

REQUIRED STORAGE:
LANDSCAPED AREA: 67,932 SF x 0.3 x 8"/12 = 13,586 CF
PAVED AREA: 11,835 SF x 1.0 x 8"/12 = 7,890 CF

TOTAL REQUIRED SUB–SHED STORAGE = 21,746 CF

PROPOSED STORAGE:

DRA 3 STORAGE VOLUME = 27,625 CF

B. SUB–SHED #2 (WETLAND POND):

SUB–SHED TRIBUTARY AREA: 432,260 SF

REQUIRED STORAGE:
LANDSCAPED AREA: 323,889 SF x 0.3 x 8"/12 = 64,778 CF
PAVED AREA: 74,854 SF x 1.0 x 8"/12 = 49,903 CF
POND AREA: 33,517 SF x 1.0 x 8"/12 = 22.345 CF

TOTAL REQUIRED SUB–SHED STORAGE = 137,026 CF

PROPOSED STORAGE:

WETLAND POND STORAGE VOLUME = 75,538 CF

OVERFLOW VOLUME:
137,026 CF – 75,538 CF = 61,488 CF
OVERFLOW VOLUME IS CONVEYED TO DRAs 1 AND 2.

C. SUB–SHED #3 (DRA 1 & 2):

SUB–SHED TRIBUTARY AREA: 286,063 SF

REQUIRED STORAGE:
LANDSCAPED AREA: 258,790 SF x 0.3 x 8"/12 = 51,758 CF
PAVED AREA: 27,273 SF x 1.0 x 8"/12 = 18,182 CF

OVERFLOW VOLUME FROM SUB–SHED #2: = 61,488 CF

TOTAL REQUIRED SUB–SHED STORAGE = 131,428 CF

PROPOSED STORAGE:

(12) – 12'ø DRYWELLS WITH 20' EFFECTIVE DEPTH
12 x 100.88 CF/VF x 20 VF = 24,211 CF

DRA 1 STORAGE VOLUME = 50,225 CF
DRA 2 STORAGE VOLUME = 69,540 CF

TOTAL PROVIDED STORAGE VOLUME = 143,976 CF

D. SUB–SHED #4:

SUB–SHED TRIBUTARY AREA: 27,181 SF

REQUIRED STORAGE:
PAVED AREA: 27,181 SF x 1.0 x 8"/12 = 18,121 CF

TOTAL REQUIRED SUB–SHED STORAGE = 18,121 CF

PROPOSED STORAGE:

(9) – 12'ø DRYWELLS WITH 20' EFFECTIVE DEPTH
9 x 100.88 CF/VF x 20 VF = 18,158 CF

TOTAL PROVIDED STORAGE VOLUME = 18,158 CF

NOTES:

I HEREBY CERTIFY THAT THE WATER SUPPLY(S) AND/OR SEWAGE DISPOSAL SYSTEM(S) FOR THIS PROJECT WERE DESIGNED BY ME OR UNDER MY DIRECTION OR WERE DETERMINED TO BE IN CONFORMANCE WIT THE APPLICABLE CODES OF THE SUFFOLK COUNTY HEALTH DEPARTMENT. ALL SANITARY SYSTEMS ARE BASED UPON A CAREFUL AND THROUGH STUDY OF THE SOIL, SITE AND GROUNDWATER CONDITIONS ALL LOTS AS PROPOSED CONFORM TO THE SUFFOLK COUNTY DEPARTMENT OF HEALTH SERVICES CONSTRUCTION STANDARDS AS OF THIS DATE.

JOSEPH R. AMATO P.E. NO. 56484
CAMERON ENGINEERING & ASSOC., LLP
177 CROSSWAYS PARK DRIVE
WOODBURY, NY 11797

I HEREBY CERTIFY THAT THIS PLAT WAS MADE FROM AN ACTUAL BOUNDARY SURVEY COMPLETED ON APRIL 19, 2017 AND CONCRETE MONUMENTS WILL BE SET AS SHOWN.

JERRY P. LARUE LICENSE No. 050518

I HEREBY CERTIFY THAT THE TOPOGRAPHY SHOWN THE STREET GRADING AND DRAINAGE PLANS ARE THE RESULTS OF AN ACTUAL SURVEY COMPLETED ON APRIL 19, 2017.

JERRY P. LARUE LICENSE No. 050518

THESE MAPS WHEN FILED IN THE CLERK OF SUFFOLK COUNTY SHALL COLLECTIVELY BE DEEMED TO BE THE FILING REQUIRED BY ARTICLE 98, SECTION 339–P OF THE REAL PROPERTY LAW OF THE STATE OF NEW YORK.

NO OFFER OF DEDICATION OF THE STREETS OR HIGHWAYS AS THEY APPEAR ON THIS PLAT IS MADE TO THE PUBLIC; NOR IS THE TOWN OF SMITHTOWN IN ANY WAY RESPONSIBLE FOR THEIR MAINTENANCE.

BY____________________
OWNER

I HEREBY CERTIFY THAT THE UNIT DESIGNATIONS SHOWN HEREON CONFORM TO THE OFFICIAL TAX RECORDS OF THE TOWN OF SMITHTOWN AND ARE HEREBY APPROVED.

SOLE TAX ASSESSOR, TOWN OF SMITHTOWN, N.Y. DATE

EXISTING EASEMENT DESCRIPTIONS

EXISTING EASEMENT 'A'
ELECTRIC EASEMENT SHOWN ON OLD SURVEY

N 34°29'31" E 25.82'
S 40°59'45" E 42.39'
S 26°12'54" E 112.97'
S 45°22'14" E 36.11'
S 41°54'44" E 142.47'
S 38°32'14" E 61.60'
S 89°26'45" W 31.72'
N 38°32'14" W 41.36'
N 41°51'44" W 140.98'
N 45°22'14" W 39.57'
N 26°12'54" W 113.95'
N 40°59'45" W 32.67'
TO THE POINT OF BEGINNING.

EXISTING EASEMENT 'B'
DRAINAGE EASEMENT
LIBER 11839, PAGE 509

N 33°27'20" E 97.60'
S 01°27'07" E 17.28'
S 33°27'20" W 70.68'
S 41°15'40" E 64.31'
S 01°27'07" E 23.28'
N 41°15'40" W 88.37'
TO THE POINT OF BEGINNING.

EXISTING EASEMENT 'C'
UTILITY EASEMENT SHOWN ON OLD SURVEY

N 41°15'40" W 17.55'
N 59°56'40" E 27.18'
N 69°36'31" E 39.92'
S 33°27'20" W 38.93'
S 79°02'51" W 16.50'
S 66°28'14" W 12.78'
TO THE POINT OF BEGINNING.

EXISTING EASEMENT 'D'
WATER EASEMENT SHOWN ON OLD SURVEY

N 75°30'54" E 684.17'
S 00°35'22" E 26.06'
S 75°40'36" W 240.23'
S 75°27'52" W 432.69'
N 20°23'40" W 15.34'
N 33°48'40" W 10.32'
TO THE POINT OF BEGINNING.

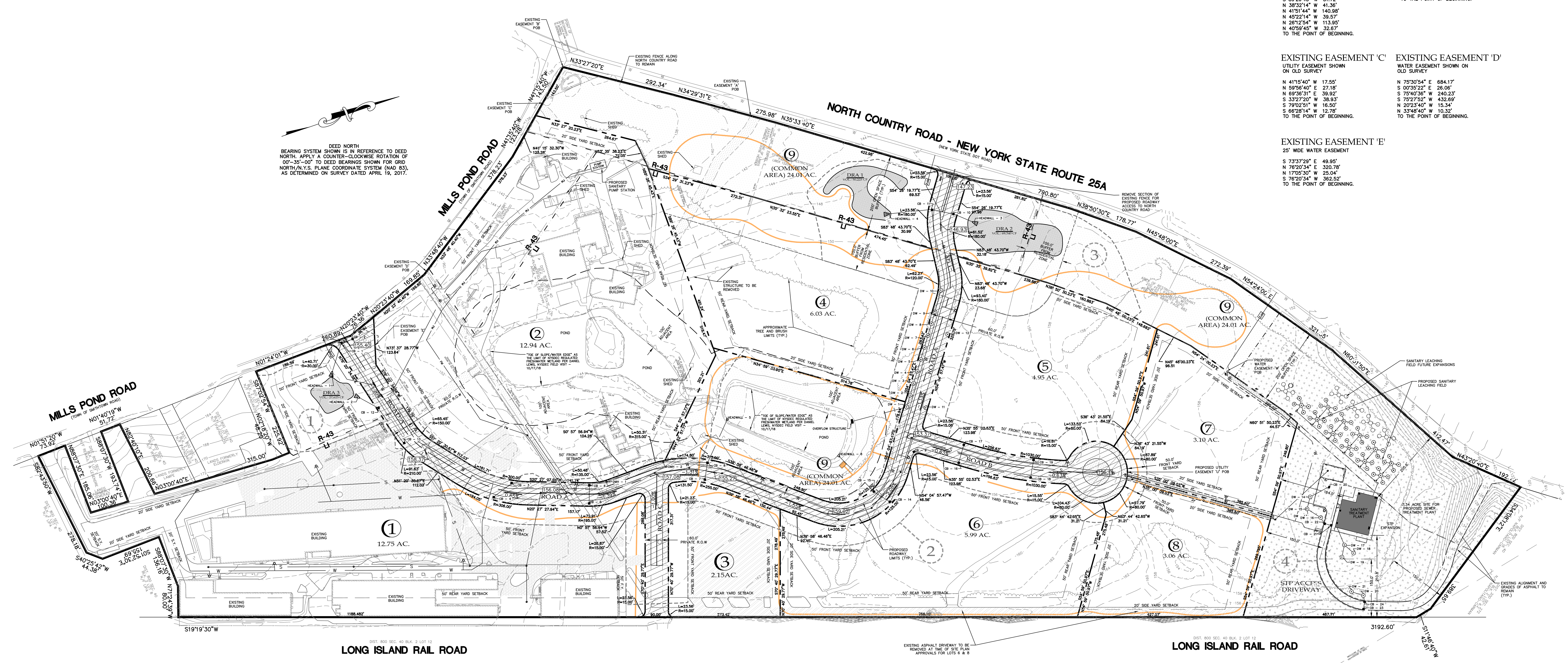
EXISTING EASEMENT 'E'
25' WIDE WATER EASEMENT

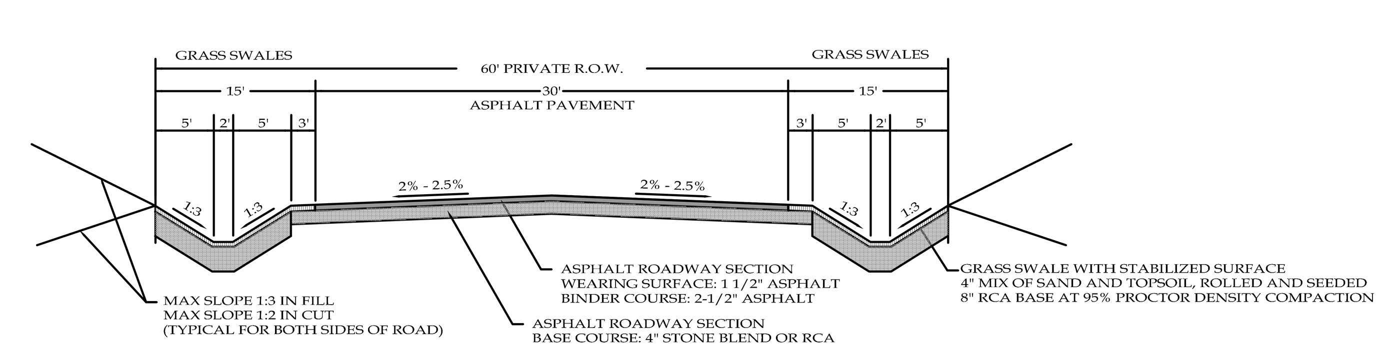
S 73°37'29" E 49.95'
N 76°20'34" E 320.78'
N 17°05'30" W 25.04'
S 76°20'34" W 362.52'
TO THE POINT OF BEGINNING.

PROPOSED EASEMENT DESCRIPTIONS

UTILITY EASEMENT 'U'
U1: N 35°00'09" E 387.81'
U2: S 54°59'51" E 20.00'
U3: S 35°00'09" W 384.70'
U4: CURVE BEARING TO THE LEFT
RADIUS 80.00 LENGTH 20.30
CHORD BEARING: N 63°51'05" W 20.24'
TO THE POINT OF BEGINNING.

WATER EASEMENT 'W'
W1: N 54°24'00" E 181.72'
W2: N 60°51'50" E 44.57'
W3: S 54°59'51" W 16.68'
W4: S 60°51'50" W 51.00'
W5: S 54°24'00" W 165.87'
W6: N 80°36'00" W 21.21'
TO THE POINT OF BEGINNING.





TYPICAL ROADWAY SECTION
SCALE: N.T.S.

GRAPHIC SCALE
(IN FEET)
HORIZ. 1 inch = 100 ft.

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SHEET 1 OF 1

Figure 1-3
Page 1-20

PRELIMINARY SUBDIVISION MAP OF FLOWERFIELD

GYRODYNE, LLC
1 FLOWERFIELD
ST. JAMES, TOWN OF SMITHTOWN,
SUFFOLK COUNTY, NEW YORK

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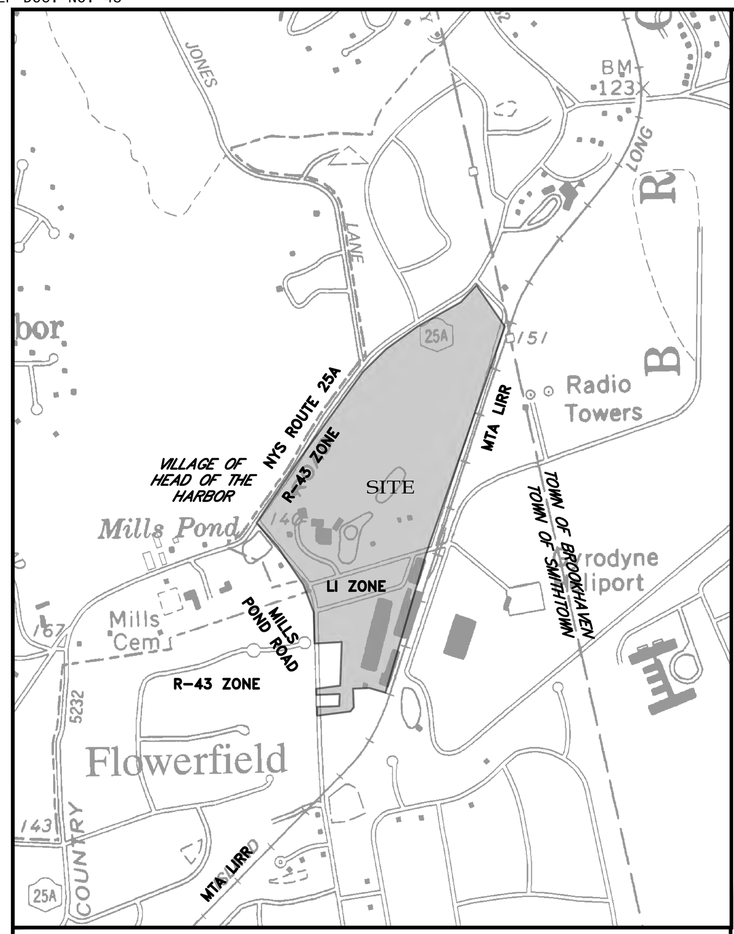
November 2019



KEY LOCATION MAP
(SCALE 1"=600'±)

EXISTING AND PROPOSED DEVELOPMENT DATA

LOT NUMBER	LOT SIZE (ACRES)	LAND USE	BUILDING SIZE/YIELD	
1	12.75	EXISTING MIXED-USE BUILDINGS	132,719	S.F.
2	12.94	EXISTING CATERING HALL	34,685	S.F.
3	2.15	PROPOSED ADDITIONAL PARKING	NA	
4	6.03	PROPOSED HOTEL WITH RESTAURANT	110,200	S.F.
			150	ROOMS
5	4.95	PROPOSED MEDICAL OR R&D OFFICE	55,350	S.F.
6	5.99	PROPOSED MEDICAL OR R&D OFFICE	74,650	S.F.
7	3.10	PROPOSED ASSISTED LIVING	74,000	S.F.
			110	UNITS
8	3.06	PROPOSED ASSISTED LIVING	74,000	S.F.
			110	UNITS
9	24.01	PROPOSED COMMON AREA AND STP	7,950	S.F.
TOTAL	74.98			

LANDSCAPE COVERAGE DATA

LOT NUMBER	LANDSCAPE AREA (ACRES)	LOT AREA (ACRES)	PERCENTAGE OF LANDSCAPED AREAS
1	3.38	12.75	27%
2	6.36	12.94	49%
3	0.84	2.15	39%
4	2.74	6.03	45%
5	1.37	4.95	28%
6	1.50	5.99	25%
7	1.41	3.10	45%
8	1.37	3.06	45%
9	20.00	24.01	83%
TOTAL	38.97	74.98	52%

ENVIRONMENTAL RESOURCE	BASE PLAN/PROPOSED ACTION
GEOLOGY	NO IMPACTS
SOILS	NO IMPACTS
TOPOGRAPHY (GRADING AND EXCAVATION AREA FROM BUILDING-PARKING FOOTPRINT)	137,350 S.F. NEW BUILDING FOOTPRINT INCLUDING NEW ON-SITE STP
VEGETATION AND WILDLIFE	HABITATS CONVERT TO HARDSCAPE OR SUCCESSIONAL FORESTS
WASTEWATER TREATMENT	ON-SITE 100 MGD STP
TRAFFIC GENERATION	324 TO 538 TRIPS INCLUDING INTERNAL TRIPS
OFF-SITE TRAFFIC MITIGATION	MITIGATION ADDRESSES OFF-SITE IMPACTS & EXISTING CONCERNS AT 2 LOCATIONS
PARKING	1,466 MORE SPACES REQUIRED SUFFICIENT ON-SITE PARKING INCLUDING SHARED & LAND-BANKED PARKING
COMMUNITY SERVICES	NO NEW SCHOOL CHILDREN; ADDED POLICE-FIRE-EMS AND UTILITY SERVICE NEEDS
TAXES AND ECONOMIC IMPACTS	1,507 CONSTRUCTION JOBS; 1,078 POST-CONSTRUCTION JOBS; TAX POSITIVE TO SCHOOL DISTRICT, TOWN, COUNTY
OPEN SPACE	±36.5 ACRES: 48.7% OF THE SITE
AIR QUALITY	MINIMAL IMPACTS, ADDRESSED BY SWPPP AND STANDARD EROSION & SEDIMENT CONTROL
NOISE	NO SIGNIFICANT LONG-TERM IMPACTS
VISUAL IMPACTS	ENHANCED SCREENING, 3-STORY BUILDING HEIGHTS, LENGTHY SETBACKS AVOID VISUAL IMPACTS; 396,150 S.F. NEW BUILDING AREA (INCLUDING ON-SITE STP)
HISTORIC AND CULTURAL RESOURCES	NO IMPACTS
WATER AND IRRIGATION	98,534 GPD
WASTEWATER	87,534 GPD
NITROGEN LOAD	32.4 lbs of N./YEAR/ACRE

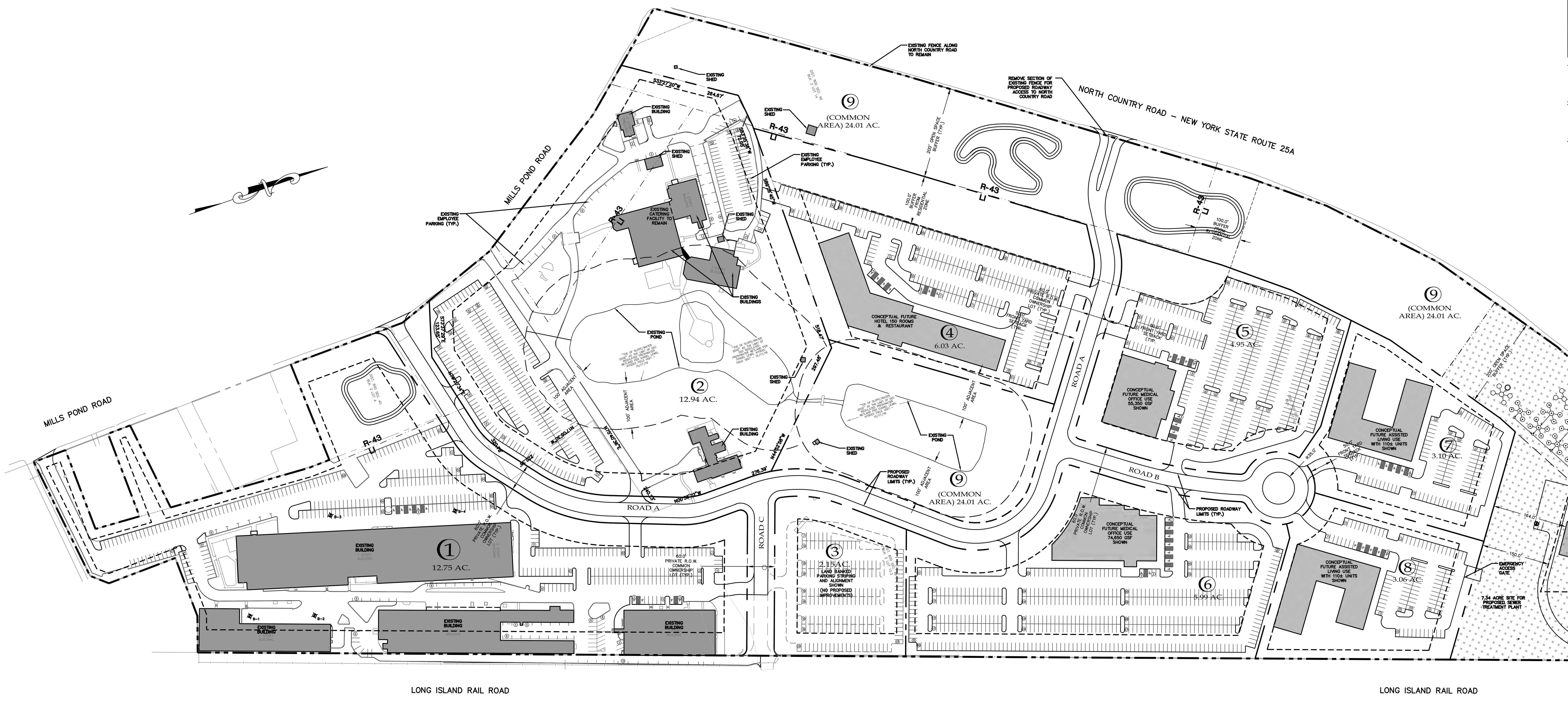
DRAINAGE CALCULATIONS

DESCRIPTION	C	A (ACRE)	i (IN/HR)	V=CxixA (CF)	V=CxixA (GALLONS)
LOT 1		12.75			
PERVIOUS	0.30	3.38	3"	11,042	82,598
IMPERVIOUS	1.00	9.37	3"	102,039	763,254
			STORMWATER STORAGE REQ.:	113,082	845,852
LOT 2		12.94			
PERVIOUS	0.30	6.36	3"	20,778	155,420
IMPERVIOUS	1.00	6.58	3"	71,656	535,988
			STORMWATER STORAGE REQ.:	92,434	691,409
LOT 3		2.15			
PERVIOUS	0.30	0.84	3"	2,744	20,527
IMPERVIOUS	1.00	1.31	3"	14,266	106,709
			STORMWATER STORAGE REQ.:	17,010	127,236
LOT 4		6.03			
PERVIOUS	0.30	2.74	3"	8,952	66,958
IMPERVIOUS	1.00	3.29	3"	35,828	267,994
			STORMWATER STORAGE REQ.:	44,780	334,952
LOT 5		4.95			
PERVIOUS	0.30	1.37	3"	4,476	33,479
IMPERVIOUS	1.00	3.58	3"	38,986	291,617
			STORMWATER STORAGE REQ.:	43,462	325,096
LOT 6		5.99			
PERVIOUS	0.30	1.50	3"	4,901	36,656
IMPERVIOUS	1.00	4.49	3"	48,896	365,743
			STORMWATER STORAGE REQ.:	53,797	402,399
LOT 7		3.10			
PERVIOUS	0.30	1.41	3"	4,606	34,456
IMPERVIOUS	1.00	1.69	3"	18,404	137,663
			STORMWATER STORAGE REQ.:	23,011	172,119
LOT 8		3.06			
PERVIOUS	0.30	1.37	3"	4,476	33,479
IMPERVIOUS	1.00	1.69	3"	18,404	137,663
			STORMWATER STORAGE REQ.:	22,880	171,142
COMMON LOT 9[3]		24.01			
PERVIOUS AREA DIFFERENCE		5.06			
PERVIOUS	0.30	14.94	8"	130,157	973,576
IMPERVIOUS	1.00	4.01	8"	116,450	871,049
			STORMWATER STORAGE PROVIDED.:	308,627	2,308,530
			TOTAL STORMWATER STORAGE REQ.:	719,082	5,378,733

1. DEVELOPMENT LOTS 1 THROUGH 8 SHALL BE FORMALLY DESIGNED AT THE TIME INDIVIDUAL APPLICATIONS ARE SUBMITTED TO THE TOWN FOR COMMERCIAL SITE PLAN APPROVALS. SITE PLANS WILL MEET THE COMMERCIAL SITE PLAN STANDARDS OF THE TOWN OF SMITHTOWN, INCLUDING STORMWATER SYSTEMS DESIGNED TO STORE THE VOLUME OF A 3-INCH RAIN EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY THE TOWN ENGINEERING DEPARTMENT.

2. DRAINAGE DESIGN FOR COMMON LOT 9 – WHICH INCLUDES PRIVATE ROADWAY, PONDS, DRAINAGE RESERVE AREAS, AREAS TO REMAIN NATURAL, AS WELL AS THE AREA SURROUNDING THE ON-SITE TREATMENT FACILITY – HAVE BEEN DESIGNED TO STORE THE VOLUME OF AN 8-INCH RAINFALL EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY §248-39.B.2 OF THE TOWN CODE, AND AS CONFIRMED BY THE TOWN ENGINEERING DEPARTMENT.

3. STORMWATER STORAGE PROVIDED FOR THE COMMON LOT 9 IS BASED ON THE TRIBUTARY AREA AS SHOWN ON DRAWINGS C-1 TO C-4 OF THE PRELIMINARY ENGINEERING PLANS. THERE ARE PORTIONS OF THE COMMON LOT THAT ARE TO REMAIN NATURAL, UNDISTURBED, OR ARE OTHERWISE NOT CAPTURED BY THE PROPOSED STORMWATER MANAGEMENT SYSTEM DUE TO EXISTING DRAINAGE PATTERNS. A CALCULATED RAINFALL RUNOFF VOLUME IS NOT PROVIDED FOR THOSE PORTIONS OF THE COMMON LOT SINCE THEY ARE PART OF THE PROPOSED STORMWATER SYSTEM AND THERE IS NO CHANGE FROM EXISTING CONDITIONS.



BASE PLAN / CONCEPTUAL DEVELOPMENT EXHIBIT

- 150-ROOM HOTEL
- 130,000 S.F. MEDICAL (OR GENERAL OR R&D) OFFICE
- 220 ASSISTED LIVING UNITS

GYRODYNE, LLC
1 FLOWERFIELD
ST. JAMES, TOWN OF
SMITHTOWN, SUFFOLK
COUNTY, NEW YORK

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November 2019

Figure 1-4: Conceptual Development Exhibit

GRAPHIC SCALE
(IN FEET)
HORIZ. 1 inch = 100 ft.

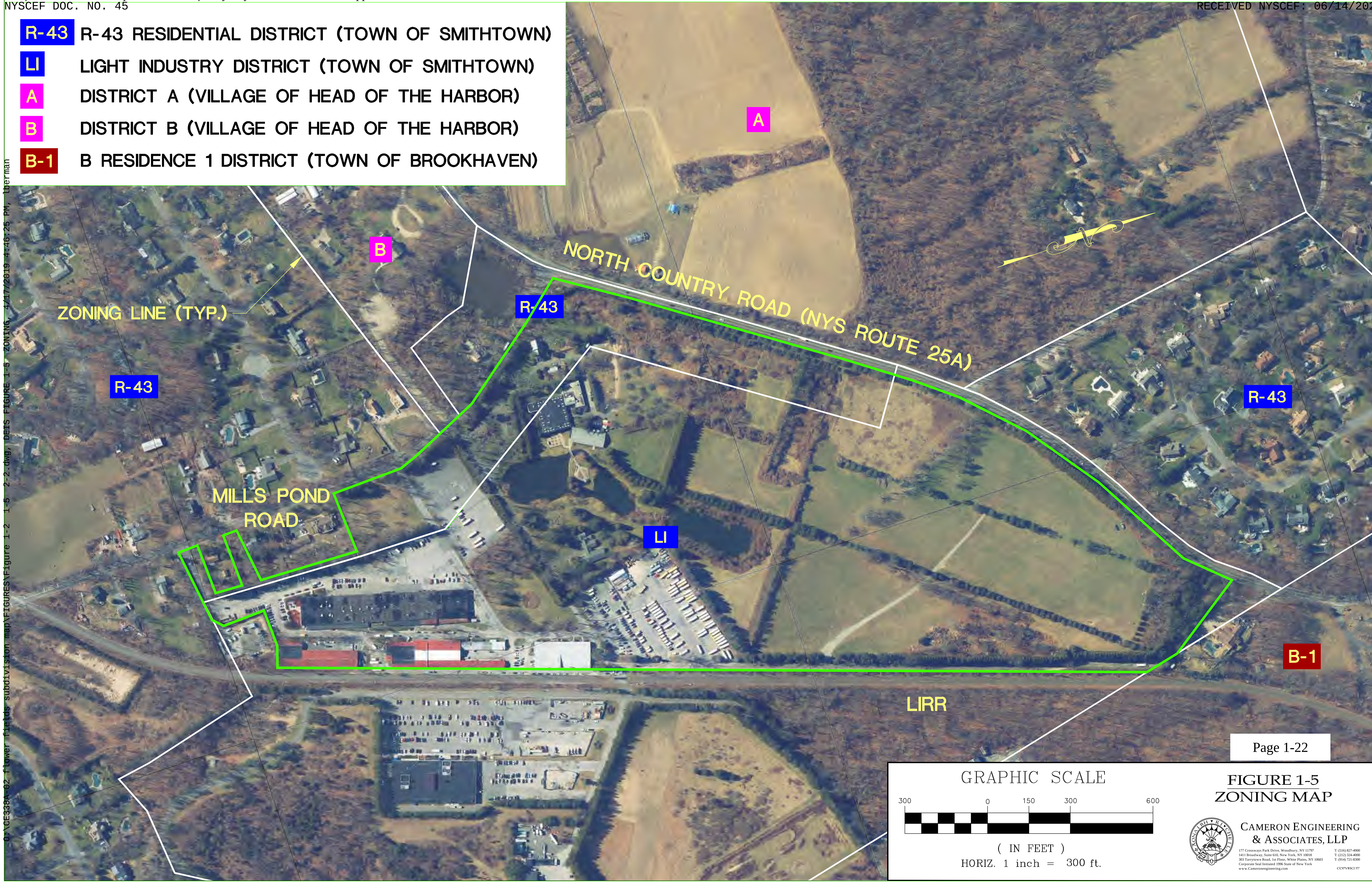


FIGURE 1-5
ZONING MAP

2. Project Description

2.1. Introduction

The Proposed Action consists of the Map of Flowerfield Preliminary Subdivision Plan - a sustainable, mixed-use campus plan for the Flowerfield property. The Map of Flowerfield Preliminary Subdivision Plan will subdivide the Flowerfield property into eight separate lots, with the ninth lot as common area under joint ownership. The property consists of 74.98 acres bounded by the Long Island Rail Road, Mills Pond Road, and NYS Route 25A (North Country Road). The State of New York acquired ±246 acres south of the railroad tracks via eminent domain in November 2005, and subsequently developed its acquisition as part of the Stony Brook University Research and Development Park.

The Flowerfield site was historically utilized as an industrial and commercial property. The majority of the site is zoned LI (Light Industrial), with small portions zoned R-43 (Residential). Currently, 18.20 acres of the site are occupied by various light industrial and commercial uses, and 12.56 acres are occupied by the Flowerfield Celebrations catering facility.

The proposed subdivision plan is intended to facilitate a mix of zoning-compliant land uses while remaining sensitive to the distinct attributes of the property and surrounding communities. The proposed plan is neither a maximum build plan nor a maximum subdivision yield plan. Rather, the vision for the Flowerfield property includes a significant amount of open space and significantly less intense development than what is permitted by-right under existing zoning. The subdivision approval process – which would ultimately regulate future development intensity at the Flowerfield site – will ensure that the site is developed in a responsible and sustainable manner. In addition, this approach would clearly outline environmental and infrastructure-related regulatory controls that would be established during the subdivision approval process. As identified throughout the planning stages of the proposed plan, special consideration has been given to the historic nature of both the NYS Route 25A corridor and nearby communities, including St. James, Head of the Harbor, and Stony Brook.

The proposed plan has also been designed to provide synergy and connectivity with neighboring uses – including Stony Brook University (and the Medical Center/Research and Development Park) and the existing Flowerfield catering hall. At this planning stage, there is no formal site plan and there is no specific developer (or group of developers) in place, so the eventual land use mix may change. However, the underlying sustainable design measures and open space would be preserved as part of the subdivision. The Proposed Action was selected as a feasible and optimal land use mix that complies with existing zoning, has synergy/compatibility with nearby land uses, addresses several goals of the draft Town of Smithtown CPU[10] and the corresponding September 2016 Planning

[10] The Draft CPU, which was never adopted, can be found at http://smithtownny.gov/comprehensiveplan. The Town Board issued an RFP to rewrite the Draft CPU. In the interim, this study fulfills the stated goals of the Planning Board resolution adopted September 21, 2016: "There should be some more flexibility for development of the Gyrodyne property. The essence of any development should: a. Support Stony Brook University, a major economic engine in the region; b. Provide a large buffer to maintain the natural and historic corridors; and c. Limit overall

Board resolution (see Appendix A), and minimizes peak hour trip generation to minimize the associated potential environmental impacts.

Existing uses – to remain:

- Lot 1: the existing light industrial uses
- Lot 2: the existing Flowerfield Celebrations catering hall

Potential new uses:

- Lot 3: envisioned as available for future parking that could be built in the future if necessary. It would serve potential overflow for the existing industrial uses on Lot 1.
  Of note, Towne Bus was a long-term office-space tenant at the Flowerfield property until the latter part of 2017; Lot 3 comprises much of the former area Towne Bus had used as a school bus depot. Towne Bus has since relocated (unrelated to this subdivision) so this document considers the bus depot parking area could be reconfigured with standard-size parking spaces and some open space.
- Lot 4: envisioned as a 150-room hotel with conference space and spa facilities. The hotel would serve the catering hall, on-site offices, Stony Brook University, and Stony Brook Medical.
- Lots 5 and 6: envisioned as 130,000 square feet of medical office, general office, or technical R&D office space that would support Stony Brook University, Stony Brook University Medical Center, and/or the University's Research and Development Park.
- Lots 7 and 8: envisioned as 220 assisted living units that could be developed separately or in one combined larger lot. There would be a synergy with the University Medical Center and with the subdivision's medical office space for residents' medical care.
- Lot 9: a commonly-owned and operated lot encompassing ±24 acres of open space, the internal road network, drainage, and a proposed sewage treatment plant (STP).

This DEIS has been prepared in accordance with the elements outlined in both the Town of Smithtown Positive Declaration and Final Scope (provided in Appendix A), as well as the Town's Standards for the Preparation of Draft and Final Environmental Impact Statements. New York State Department of Transportation (NYSDOT) also provided input on traffic and transportation related to the Proposed Action (NYSDOT Case #66334P 0800-04000-0200-013003).

As discussed above, the DEIS has also considered the goals and objectives of the Town's un-adopted Draft CPU and associated Planning Board resolution (November 2016), which aimed to provide guidance related to the goals and objectives of the Draft CPU. In addition, eight development alternatives have been developed to present a range of potential land use mixes for the Flowerfield site. The overall intent is not to prescribe

density to be less intensive than if the property were to be fully built out in compliance with existing LI zoning." See pages A-50 through A-52 for the resolution, shown with boxes around the relevant line items.

specific types of development or final land use mixes, but to assess and establish development thresholds for future development. If future development conforms with the thresholds set forth during the subdivision application process, it is possible that additional EISs would not be required for future individual site plans.

As outlined in the Final Scope, the Town also requested two specific alternatives for further analysis within the DEIS. The two alternatives requested by the Town include a public acquisition alternative (for preservation as public open space) and a subdivision layout that meets the specific design parameters outlined in the un-adopted Draft CPU (minimum 300-foot buffer and 50% of the total site area as open space).

Finally, the Final Scope requires analysis of the (previously) proposed use of the railroad crossing between Gyrodyne and the Stony Brook Research and Development Park. Gyrodyne has been actively coordinating the proposed re-opening of the railroad crossing. While significant progress has been made in this effort, including support from SBU, there is still a degree of uncertainty as to when this might be accomplished. Timing associated with LIRR and NYSDOT involvement and with one or more public hearings required to secure an approval results in an uncertain timeframe. Accordingly, Gyrodyne has modified the proposed Preliminary Subdivision Plan to clarify the railroad crossing as a "possible/future re-opening of railroad crossing". The updated Preliminary Subdivision Plan would not result in the re-opening of the railroad crossing. As such, Alternative 8 reflects conditions with the railroad crossing re-opened, to analyze the future potential use of the crossing.

In total, this DEIS analyzes ten distinct development alternatives, including the Proposed Action and No Action alternatives. The complete alternatives analysis is provided in Section 19 (Alternatives).

2.2. Location

The 74.98-acre Flowerfield site is located between NYS Route 25A (North Country Road) and the right-of-way of the Long Island Rail Road, on the east side of Mills Pond Road in the Town of Smithtown (shown on pages 1-18 to 1-22 in Figure 1-1, Figure 1-2, Figure 1-4, and Figure 1-5). The site is in the unincorporated Hamlet of St. James, within the Town of Smithtown, New York (Tax Map Nos. 0800-40-2-4, 13.3, 13.4, 14, and 15). At the present time, approximately 41 percent of the site (±30.76 acres) is used for a variety of commercial and light industrial uses. The remainder of the site is vacant.

2.3. Purpose and Need

The Proposed Action represents an important initial step in ensuring the responsible development of the Flowerfield site. This approach has been selected by Gyrodyne LLC as it provides an opportunity to develop the site in a manner that better aligns with the goals of the Town and establishes defined development thresholds. As opposed to a formal site plan application, which would propose specific uses and structures, this subdivision process will establish the framework for future development, including environmental thresholds and design standards. The Proposed Action and Alternatives provide a comprehensive guide for future development and the corresponding mitigation measures for various land use mixes and layouts. The DEIS is intended to establish a range of potential impacts and associated mitigation for one or more categories (e.g. transportation and sewage treatment). Future applicants would be able to rely on this DEIS to obtain municipal approvals, so long as said development is within or vastly similar to the framework analyzed in this document.

The Proposed Action would allow new development on the site in a manner that is consistent with existing zoning, responds to current market trends and creates synergies to Stony Brook University and Stony Brook University Medical Center.

2.4. Subdivision Benefits

The proposed subdivision has a wide variety of tangible benefits, as summarized below.

Economic/Fiscal Benefits: The Proposed Action is expected to generate over 1,500 construction jobs, hundreds of permanent full-time jobs associated with the potential new land uses, and significant increases in tax revenue associated with construction and operation of new and improved buildings. The most significant tax benefit will be to the local school district, which will have zero additional school-age children but will receive portions of the added tax revenues associated with this subdivision. As identified in the Final Scope a complete fiscal and economic analysis is provided in Section 11.

Additionally, the site's close proximity to the Stony Brook Research and Development Park makes the Flowerfield property a prime location for new tenants or relocated tenants from Stony Brook University/Stony Brook Medical. This is also a primary recommendation in the un-adopted Draft CPU, as described below:

- Housing diversity for persons in need of assisted living
- Medical offices would have synergy with Stony Brook Medical
- A hotel/conference center would have synergy with the existing Flowerfield catering hall, Stony Brook University, CEWIT/R&D Park, and Stony Brook Medical

Environment/Sustainability: The proposed subdivision layout retains nearly 49% of total site area as open space - with walking trails, landscaping, and required buffers next to the NYS Route 25A corridor and interconnected throughout the 74.98-acre property. The buffer to NYS Route 25A will be 200 feet or more, reaching 300 feet towards the northwest portion of the property. The Proposed Action calls for the preservation of mature evergreens and existing understory vegetation along the perimeter of the property, helping to preserve the rural roadscape surrounding the site. Numerous existing evergreens and hedgerows would also be preserved throughout the interior of the campus.

Wastewater/Nitrogen Reduction: Currently, the project site has individual on-site wastewater treatment systems (OWTS) for each use/building. With the proposed subdivision in place, the proposed sewage treatment plant (STP) would achieve a substantial improvement in groundwater contaminant removal as compared to current conditions:

- There would be a significant reduction in total pounds of nitrogen discharged to groundwater compared to a full as-of-right build-out of the site.
- There would be an overall nitrogen reduction of ±89% when comparing wastewater influent to effluent.

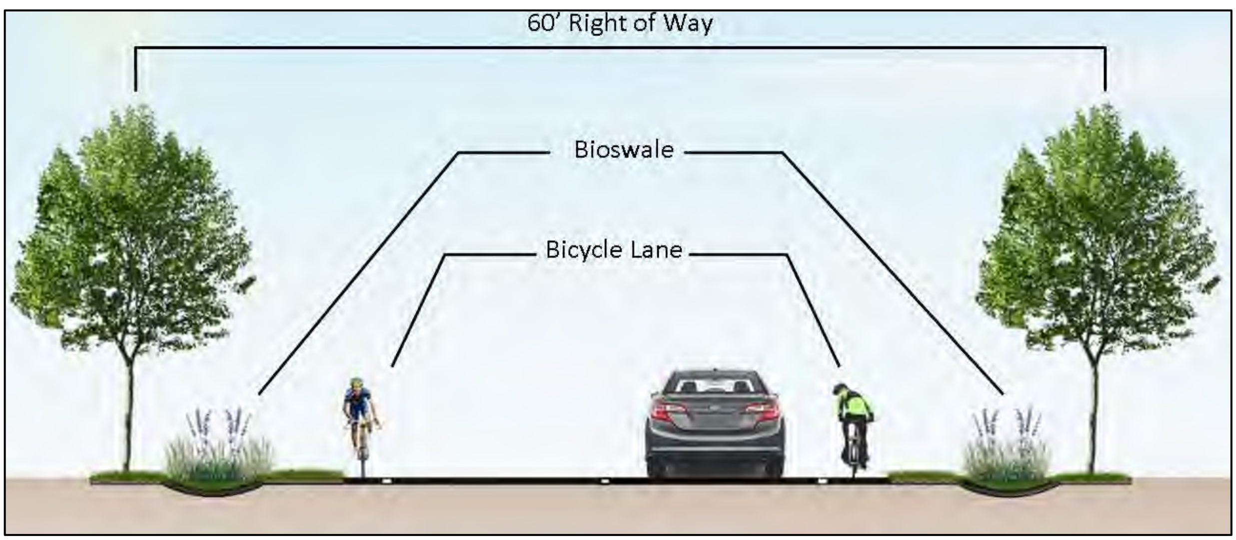
Traffic Safety: The proposed subdivision includes mitigation/improvement measures at several intersections that require improvements today (before any changes are made at the Flowerfield site) due to congestion or other traffic concerns.

The subdivision would include the following off-site improvements:

- A new traffic signal at the intersection of NYS Route 25A and Mills Pond Road, which NYSDOT agreed should be signalized in 2007 (see Appendix B page B-43).
- A signal, roundabout, or another improvement as directed by NYSDOT at the intersection of NYS Route 25A and Stony Brook Road (see Appendix F page F-318).
- Restriping within the existing right-of-way to add short northbound and southbound left turn lanes at the intersections of Stony Brook Road with South Drive and Oxhead Road, with left turn arrows at the existing signals, to address existing congestion (associated in large part with Stony Brook University).

Complete Streets: Today, much of the site is comprised of unmanaged landscaping surrounding paved parking lots. Some nearby residents reportedly use the Flowerfield site as a walking route or destination (as stated during the November 15, 2017 Planning Board hearing for this application). The proposed interior roads are designed to be wide enough for vehicles and bicycles, with appropriate landscaping to provide an attractive walking and cycling network within the property that does not exist today, plus just over two miles of new nature trails throughout the subdivision.

Figure 2-1: Proposed Interior Subdivision Road Cross Section



Stormwater Management: On-site stormwater management has been guided by Low Impact Development (LID) principles, which utilizes natural and landscaped features to protect water quality. The proposed design approach incorporates "green" infrastructure to help convey stormwater to on-site drainage reserve areas (DRAs) and to maximize the vegetated area that allows for passive recharge. As shown in Figure 2-1 above, the proposed interior road cross sections include roadside turf swales.

Overall, the proposed subdivision will provide 265,297 cubic feet of stormwater storage, an excess of 18,464 cubic feet of storage volume. One of the DRAs can be enlarged in the future to provide an additional 28,697 cubic feet of storage, for a total of 47,161 cubic feet of excess storage, equivalent to 1.53 inches (±20%) above the required 8-inch design. This meets New York State's high-end projection of a 20% increase in precipitation change. See Section 8.3: Stormwater Collection, Treatment, and Recharge Proposed Mitigation.

Meets Town (un-adopted) Draft CPU Goals for the Gyrodyne (Flowerfield) Property: During most of the preparation process for the DEIS, the Town's Draft Comprehensive Plan Update was current. However, as of April 10, 2018, the Town Board adopted a resolution to fund a full revision of the Draft CPU, a process which is expected to take over a year. In the interim, the following considerations in the Town's Draft CPU and subsequent September 21, 2016 adopted Planning Board resolution, were considered in developing the Proposed Action:

1) "There should be some more flexibility for development of the Gyrodyne property."
    - This study considers a range of development options for the property.
2) "The essence of any development should support Stony Brook University, a major economic engine in the region;"
    - Medical offices will complement Stony Brook Medical. Doctors could lease office space at the Flowerfield site and have a very short commute between their offices and the hospital.
    - Assisted living units would be very close to Stony Brook Medical, which should be a strong selling point with respect to health and safety for future residents.
    - The hotel would be a place for people to stay, convenient to visit Stony Brook University and Stony Brook Medical.
    - If the office space is utilized for research and development, it will complement the Stony Brook Research and Development Park.
    - General office space would complement several aspects of the University.
3) "The essence of any development should provide a large buffer to maintain the natural and historic corridors;"
    - All of the potential subdivision layouts would abide by the required 200-foot minimum buffer along NYS Route 25A and required buffers to existing R-43 zoned parcels (which has the net effect of a 300-foot buffer along certain portions of NYS Route 25A). The existing setbacks/buffers along Mills Pond Road will remain.
4) "The essence of any development should limit overall density to be less intensive than if the property were to be fully built out in compliance with existing LI zoning."
    - The analyzed development scenarios are less intensive and generate less traffic and fewer trucks than as-of-right light industrial or medical office uses.

In addition to the Planning Board's stated goals, the Proposed Action fulfills other goals of the draft CPU which could remain in the new Master Plan document that will be prepared:

5) Related to economic development: Uses that complement Flowerfield Celebrations
    - A hotel would complement the existing catering hall because catering hall parties are often significant lifetime milestones (e.g. weddings) with out-of-town guests who require a hotel.
6) A need for maturing residents who wish to remain in the Town and age-in-place:
    - Assisted living facilities are age-restricted and generate less traffic per square foot than any other typical residential, commercial, or industrial land use[11] and they generate zero school-age children.

2.5. Operation

Each lot could be independently owned and operated, or adjacent lots could be jointly purchased and developed. Joint-lot development would not significantly alter the potential yield; it would simply allow more options for the design and orientation of new buildings, parking, landscaping, and utility connections. Only Lot 9 would need to remain separate, and commonly owned and operated, because Lot 9 would include the internal roads, drainage, and proposed STP.

The existing uses on Lots 1 and 2 would continue operating as they currently function. A new wastewater pumping station is proposed to be located on Lot 2. The pumping station would be sited on a 20’ x 40’ concrete pad, with most equipment located below ground. Above-ground equipment would be limited to a control panel and emergency generator. Overall height of the pumping station structure would be less than one story. The light industrial buildings would tend to be open during typical weekday business hours (generally between 8:00 a.m. and 6:00 p.m.), and the catering hall would continue to schedule peak activity on Friday evenings, on Saturdays, and on Sundays.

Lot 3 would be utilized for overflow parking for the existing or expanded uses.

While proposed uses on Lots 4-8 have been identified as the optimal land use mix and density for the Flowerfield site, it is noted that future development is not necessarily tied to this mix of uses.

The hotel on Lot 4 would be owned and operated by a licensed entity and would generally be open to receive/serve guests 24 hours a day, 7 days a week.

The office buildings on Lots 5 and 6 could be owned and operated/maintained by the same entity (potentially the University or its Medical Center), or it could be leased to any number of office/medical office tenants. The hours of operation will depend on the eventual type of office tenants. General business offices typically operate during standard weekday business hours between 8:00 a.m. and 6:00 p.m., while medical offices may also include a Saturday midday component (generally between 9:00 a.m. and 2:00 p.m.)

The assisted living buildings on Lots 7 and 8 would be owned and operated by a State-licensed entity. Residents would rent individual rooms on an annual or monthly basis, and the facilities would be open to visitors during set hours each day.

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[11] Institute of Transportation Engineers (ITE) *Trip Generation Manual* 10th Edition, 2017. Data for residential, office, retail, and industrial land uses.

Each lot owner will have a pro-rated share of financial responsibility for maintaining the internal roads, drainage, landscaping, and STP on Lot 9. The owners would be fully responsible for the maintenance, landscaping, and irrigation on their individual lot(s). The STP would operate 24/7 and would have periodic maintenance/repair visits.

2.6. Covenants, Restrictions, and Easements

The proposed subdivision is subject to certain Covenants and Restrictions, Easements, Charges, and Liens governing various areas of the site. The existing Covenants, Restrictions, and Easements, attached hereto as Appendix C, as applicable to the subject parcels within the site, are not violated in the proposed subdivision, do not require relief, and will be maintained.

Consistent with the Town's request, a summary of the nature and effect of each of the applicable covenants, restrictions, and easements, including a verbatim copy of the body of each such document, is set forth below.

Restrictive Covenant made by Gyrodyne Company of America, Inc. dated October 26, 1960 and recorded October 31, 1960 in Liber 4898 Cp 482 [see pages C-6 to C-10], pursuant to Resolution #509 of the Town of Smithtown Town Board dated September 15, 1960 and recorded March 8, 1978 in Liber 8398 Cp 269 [see pages C-32 to C-36], and last supplemented by Memorandum of Agreement dated April 28, 1964 and recorded December 22, 1964 in Liber 5674 Cp 11 [see pages C-11 to C-31].

- As provided below, this Restrictive Covenant, as amended, prohibits the construction of any building or parking area within a defined 200-foot buffer located immediately adjacent to and south of North Country Road (State Route 25A). This Restrictive Covenant also mandates the buffer and screening of all parking areas located within 100 feet of the east boundary of SCTM District 0800 Section 40.00 Block 02.00 and Lots 004.000, 005.001, 005.002, 006.000 and 007.000. There are no existing buildings or parking areas within the defined 200-foot buffer located immediately adjacent to and south of North Country Road (State Route 25A). Likewise, the proposed subdivision and the alternatives do not propose to construct any buildings or parking areas within the defined 200-foot buffer located immediately adjacent to and south of North Country Road (State Route 25A).The site is, however, improved with a parking area east of and within 100 feet of the above-mentioned tax parcels. However, a 25-foot buffer exists between the east boundary of said parcels and the west boundary of the parking area, and within this buffer, adequate screening of the parking area is provided. The existing screening consists of a row of Norway Spruce and additional overgrowth, complying with this Restrictive Covenant. The Memorandum of Agreement dated April 28, 1964 and recorded December 22, 1964 in the Office of the Suffolk County Clerk in Liber 5674 Cp 11 supplements this Restrictive Covenant. The Memorandum of Agreement (i) establishes property rights for a number of neighboring property owners named in the action before the New York State Supreme Court, Index No. 73281/1961, and (ii) sets forth covenants and restrictions already encompassed within both the Restrictive Covenants dated October 26, 1960 and the recorded Town of Smithtown Resolution #509 dated September 15, 1960. Thus, the proposed subdivision and the alternatives comply with the terms of this Restrictive Covenant and the above-mentioned supplemental documents.

RESTRICTIVE COVENANT

WHEREAS, by petition verified June 28, 1960, the undersigned, GYRODYNE COMPANY OF AMERICA, INC., a corporation having offices at Flowerfield, Town of Smithtown, Suffolk County, New York, made application to the Town Board of the Town of Smithtown for a change of zone of certain of its real property located in Flowerfield, Town of Smithtown, Suffolk County, New York, from "A" Residence District classification to "G" Industrial District (Light Industrial) classification, as defined in the Building Zone Ordinance and Map of the Town of Smithtown, and

WHEREAS, after public hearing held upon said application on July 12, 1960, the Town Board of the Town of Smithtown, by resolution duly adopted on September 15, 1960, granted the application of said GYRODYNE COMPANY OF AMERICA, INC. to the extent that the following described real property was placed within the "G" Industrial District (Light Industrial) zone and classification as defined by the Building Zone Ordinance and Map of the Town of Smithtown:

ALL that certain plot, piece or parcel of land situate lying and being at Flowerfield in the Town of Smithtown, Suffolk County, New York more particularly bounded and described as follows:

BEGINNING at a point formed by the intersection of the northerly line of land now or formerly of Annie E. Newton with the westerly line of the Long Island Railroad right-of-way;

Thence, along said northerly line of Annie E. Newton South 82°43'50" West a distance of 266.14 feet;

Thence, North 2°57’50" East a distance of 188.10 feet along the easterly boundary of land now or formerly of Semerad;

Thence, North 3°00'40" East a distance of 181.70 feet along the easterly boundary of land now or formerly of Lampe;

Thence, North 2°01’45" East a distance of 252.76 feet along the easterly boundary of land now or formerly of Robert Elderkin;

Thence, North 2°11'50" West a distance of 265 feet along the easterly boundary of land now of Jankowski;

Thence, North 18°58’50" West a distance of 349.88 feet;

Thence, North 0°28'20" West a distance of 678.25 feet to the southeasterly corner of land now or formerly of Louise Heisler;

Thence, along the northeasterly boundary of land now or formerly of Louise Heisler North 53°20'30" West a distance of 321.62 feet to the southerly side of North Country Road;

Thence along the southerly side of North Country Road the following six courses and distances:

1. North 35°33’40” East a distance of 790.80 feet;
2. North 38°50’30” East a distance of 178.77 feet;
3. North 45°48’ East a distance of 272.39 feet;
4. North 54°24’ East a distance of 321.35 feet;
5. North 60°51’50” East a distance of 412.47 feet;
6. North 43°20’40” East a distance of 192.72 feet;

Thence, South 34°06'20" East a distance of 390.15 feet to a point on a common boundary line between the Town of Smithtown and the Town of Brookhaven;

Thence, along said common boundary line South 11°46'40” East a distance of 40.94 feet to a point on the westerly line of the Long Island Railroad right-of-way;

Thence, along said westerly line of the Long Island Railroad right-of-way the following two courses and distances:

1. South 19°19’30” West a distance of 3,247.72 feet;
2. Along the arc of a curve bearing to the right having a radius of 1,399.14 feet, a distance of 136.20 feet, to the point or place of beginning, and

WHEREAS, the said resolution of the Town Board of the Town of Smithtown adopted on September 15, 1960, and the change of zone granted thereby were made upon two conditions, and

WHEREAS, the first of said condition requires that GYRODYNE COMPANY OF AMERICA, INC. execute and cause to be recorded in the Suffolk County Clerk's Office, a restrictive covenant providing that GYRODYNE COMPANY OF AMERICA, INC., its successors and assigns will not construct, erect or place any building on certain portions of its property frontage upon North Country Road, and

WHEREAS, the second of said conditions requires that any parking lot or parking area constructed by GYRODYNE COMPANY OF AMERICA, INC. upon certain portions of its property be screened from certain adjoining residential properties,

NOW, THEREFORE, in compliance with the conditions contained in the aforesaid resolution of the Town Board of the Town of Smithtown adopted on September 15, 1960, as aforesaid, GYRODYNE COMPANY OF AMERICA, INC. covenants:

1. That, at no time, will GYRODYNE COMPANY OF AMERICA, INC., its successors or assigns construct, erect or place any building on that portion of its real property located at Flowerfield, Town of Smithtown, New York, bounded:
   a. on the north by the southerly line of North Country Road (State Route 25A);
   b. On the south by an imaginary line drawn parallel to and two hundred (200) feet southerly from the southerly line of North Country Road (State Route 25A):
   c. on the west by land now or formerly of Heisler; and
   d. on the east by the current easterly boundary of property of GYRODYNE COMPANY OF AMERICA, INC.

2. That any parking lot or parking area constructed by GYRODYNE COMPANY OF AMERICA, INC., its successors or assigns, within one hundred (100) feet of the easterly boundary of lands now or formerly of Jankowski, Elderkin, Lampe and Semerad shall be screened from said properties by the installation and maintenance of ten (10) feet of lawn area immediately east of said easterly line of said properties, followed by the installation and maintenance of a natural screen of Norway Spruce immediately east of said ten (10) feet of lawn area and followed by the installation and maintenance of a five (5) foot area of lawn between the said Norway Spruce and the westerly most portion of the improved surface of the parking area, said combined lawn and planting area to be of a width equal to that of said parking area.

IN WITNESS WHEREOF, the said GYRODYNE COMPANY OF AMERICA, INC. has caused its corporate seal to be hereunto affixed and these presents to be signed by the duly authorized officer this 26th day of October, 1960.

GYRODYNE COMPANY OF AMERICA, INC.
-s-
By: Peter J. Papadakos, President

Special Meeting
Town Board
Town of Smithtown
September 15, 1960

A special meeting of the Town Board of the Town of Smithtown, Suffolk County, NY, was held at the Town Hall, Smithtown, New York on the 15th day of September 1960 at 9:30 A.M.

Members present:	Supervisor	Robert A. Brady
	Justices	Peter Nowick
		Floyd Sarisohn
	Councilmen	Otto H. Schubert
		Paul T. Given

A Waiver of Notice of Special Meeting was executed by the members of the Board and submitted to the Town Clerk for filing.

Councilman Given stated that one of the reasons for this meeting was to adopt a resolution approving the petition of Gyrodyne Company of America for an industrial classification. The Town Board has given a great deal of study to this application, and they are now ready to offer a decision.

The following resolution was offered by Councilman Given and seconded by Councilman Schubert.

WHEREAS, Gyrodyne Company of America, Inc., of Flowerfield, Town of Smithtown, Suffolk County, New York, by petition verified June 28, 1960, made application to this Board for a change of zone of certain of its real property located at Flowerfield, as said real property is more particularly described in said application, from “A” Residence zone classification to “G” Industrial (Light Industrial) classification, and

WHEREAS, a public hearing was held by this Board at 2:00 P.M. on July 12, 1960 at Town Hall, Smithtown, New York, following notice thereof duly published and posted as required by law, and

WHEREAS, this Board has fully considered the evidence submitted in support of said application and the evidence submitted in opposition thereto, and whereas this Board has determined that said application should be granted in part, subject to certain limitations,

NOW THEREFORE, be it and it hereby is

RESOLVED, that the application of Gyrodyne Company of America, Inc. be granted to the extent that the following described real property shall be placed within the “G” Industrial (Light Industrial) zone and classification.

ALL that certain plot, piece or parcel of land situate lying and being at Flowerfield in the Town of Smithtown, Suffolk County, New York, more particularly bounded and described as follows:

BEGINNING at a point formed by the intersection of the northerly line of land now or formerly of Annie E. Newton with the westerly line of the Long Island Railroad right-of-way;

Thence, along said northerly line of Annie E. Newton South 82°43’50" West a distance of 266.14 feet;

Thence, North 2°57’50" East a distance of 188.10 feet along the easterly boundary of land now or formerly of Semerad;

Thence, North 3°00'40" East a distance of 181.70 feet along the easterly boundary of land now or formerly of Lampe;

Thence, North 2°01’45" East a distance of 252.76 feet along the easterly boundary of land now or formerly of Robert Elderkin;

Thence, North 2°11'50" West a distance of 265 feet along the easterly boundary of land now of Jankowski;

Thence, North 18°58’50" West a distance of 349.88 feet;

Thence, North 0°28'20" West a distance of 678.25 feet to the southeasterly corner of land now or formerly of Louise Heisler;

Thence, along the northeasterly boundary of land now or formerly of Louise Heisler North 53°20'30" West a distance of 321.62 feet to the southerly side of North Country Road;

Thence along the southerly side of North Country Road the following six courses and distances:

1. North 35°33’40” East a distance of 790.80 feet;
2. North 38°50’30” East a distance of 178.77 feet;
3. North 45°48’ East a distance of 272.39 feet;
4. North 54°24’ East a distance of 321.35 feet;
5. North 60°51’50” East a distance of 412.47 feet;
6. North 43°20’40” East a distance of 192.72 feet;

Thence, South 34°06'20" East a distance of 390.15 feet to a point on a common boundary line between the Town of Smithtown and the Town of Brookhaven;

Thence, along said common boundary line South 11°46'40” East a distance of 40.94 feet to a point on the westerly line of the Long Island Railroad right-of-way;

Thence, along said westerly line of the Long Island Railroad right-of-way the following two courses and distances:

1. South 19°19’30” West a distance of 3,247.72 feet;

2. Along the arc of a curve bearing to the right having a radius of 1,399.14 feet, a distance of 136.20 feet, to the point or place of beginning, and

BE IT FURTHER RESOLVED, that the Building Zone Ordinance and Map of the Town of Smithtown be amended accordingly.

BE IT FURTHER RESOLVED that said change of zone is made upon and subject to the following two conditions:

1. That Gyrodyne Company of America, Inc., execute and cause to be recorded in the Office of the Clerk of Suffolk County a restrictive covenant to the effect that at no time will said Gyrodyne Company of America, Inc., its successors and assigns construct, erect or place any building on that portion of its real property located within an area bounded on the north by the southerly side of North Country Road, and on the south by an imaginary line drawn parallel to and 200 feet southerly from the southerly line of North Country Road, on the west by land now or formerly of Heisler, and on the east by the current easterly boundary of property of said Gyrodyne Company of America, Inc.
2. That any parking lot or parking area constructed by Gyrodyne Company of America, Inc., within one hundred (100) feet of the easterly boundary of lands now or formerly of Jankowski, Elderkin, Lampe and Semerad shall be screened from said properties by the installation and maintenance of ten feet of lawn area immediately east of said easterly line of said properties, followed by the installation and maintenance of a natural screen of Norway Spruce immediately east of said ten feet of lawn area and followed by the installation and maintenance of a five foot area of lawn between the said Norway Spruce and the westerly most portion of the improved surface of the parking area, said combined lawn and planting area to be of a width equal to that of said parking area.

_______________.

MEMORANDUM OF AGREEMENT, made this 28th day of April, 1964, between GYRODYNE COMPANY OF AMERICA, INC., a corporation having its principal office and place of business at Flowerfield, Town of Smithtown, Suffolk County, State of New York New York, FIRST PARTY; THE CHASE MANHATTAN BANK, a banking corporation having its principal office and place of business at One Chase Manhattan Plaza, Borough of Manhattan, City and State of New York, individually and as agent under Credit Agreement dated as of December 30, 1960, between Gyrodyne Company of America, Inc., and The Chase Manhattan Bank, The Franklin National Bank of Long Island, New York Business Development Corporation and Bank of Smithtown, as amended by a supplemental agreement dated August 19, 1961, SECOND PARTY; OLIVER HAZARD PERRY, of 212 Dawley Road, Fayetteville, New York and AUDREY PERRY BURNIER, of 3543 Third Avenue, San Diego, California, THIRD PARTIES: MATHILDE L. PERRY of St. James, New York, FOURTH PARTY: the TOWN OF SMITHTOWN, FIFTH PARTY, and the INCORPORATED VILLAGE OF HEAD OF THE HARBOR, SIXTH PARTY;

W I T N E S S E T H:

WHEREAS, the Town Board of the Town of Smithtown, by resolution adopted September 15, 1960 granted an application of FIRST PARTY to the extent that certain property owned by FIRST PARTY within the boundaries of which the property of FIRST PARTY hereinafter described is situated was reclassified by amendment of the Building Zone Ordinance and Map of the Town of Smithtown; and

WHEREAS, as a condition to the change of zone effected by said resolution of September 15, 1960 the Town of Smithtown required FIRST PARTY to execute and record a certain restrictive covenant recorded in the Smithtown County Clerk's Office on October 30, 1960, in Liber 4898, cp. 482; and

WHEREAS, thereafter an action was instituted in the Supreme Court, Suffolk County, entitled "John M. Perry, Mathilde L. Perry, Jean M. Dougherty, Louise Heisler, Katherine Jankowski, Neil Garguilo, Mary Garguilo, Robert B. Elderkin, Martha Elderkin, Janet S. Elderkin, Marie A. Bauer, John G. Sweek, Phyllis Sweek, Jay Gaines, Marcia Gaines, Benjamin Yablonski, Edwin

Yablonski, Carol L. Strauss, Mildred Smith, Josephine Smith, Malcolm E. Smith and the Incorporated Village of the Head of the Harbor, Plaintiffs, against Town of Smithtown and Gyrodyne Company of America, Inc., Defendants.", Index Number 73281/1961, praying judgment:-

Declaring amendment of the Building Zone Ordinance and Official Zoning Map of the Town of Smithtown, adopted September 15, 1960, unconstitutional, illegal and ineffective.

Restraining the Town of Smithtown and its officers, agents and employees from doing any acts pursuant thereto;

Restraining defendant Gyrodyne Company of America, Inc. from devoting any of its real property described in the resolution of the Town Board adopted September 15, 1960 to any uses not permitted by the Building Zone Ordinance of the Town of Smithtown in an "A" Residential District; and

Granting plaintiffs such other and further relief as may be just and proper together with the costs and disbursements of the action; and,

WHEREAS, SECOND PARTY, individually and as agent aforesaid is the holder of bonds of FIRST PARTY, secured by mortgages upon the property hereinafter described, which mortgages are dated and recorded respectively as follows:

Gyrodyne Company of America, Inc. to The Chase Manhattan Bank, individually and as agent under Credit Agreement dated as of December 30, 1960 between Gyrodyne Company of America, Inc. and The Chase Manhattan Bank, the Franklin National Bank of Long Island, New York Business Development Corporation and Bank of Smithtown, mortgage dated January 6, 1961, recorded January 20, 1961 in the office of the Clerk of Suffolk County in Liber 3561, mp 389.

Gyrodyne Company of America, Inc. to The Chase Manhattan Bank, individually and as agent under Credit Agreement dated as of December 30, 1960 between Gyrodyne Company of America, Inc. and The Chase Manhattan Bank, the Franklin National Bank of Long Island, New York Business Development Corporation and Bank of Smithtown, as amended, by Supplemental Agreement dated August 18, 1961, recorded August 22, 1961 in the office of the Clerk of Suffolk County in Liber 3688, mp 21.; and,

WHEREAS, the latter mortgage dated August 18, 1961 by language therein contained was consolidated with the mortgage recorded in Liber 3561, mp. 389 to form a single first mortgage lien; and

WHEREAS, the aforesaid action is now pending and the parties desire to declare their respective rights and legal relations and those of their successors and assigns in and with relation to the real property hereinafter described by mutual covenant running with said real property and thereafter to discontinue the aforesaid action thereby avoiding the expense thereof;

WHEREAS, JOHN M. PERRY, one of the plaintiffs in the aforesaid action, died on the 16th day of January, 1964, seized and possessed of real property situated on North Country road, St. James, Suffolk County, New York, acquired by deed dated July 17, 1917 and recorded in the office of the County Clerk of Suffolk County, in Liber 961 of Conveyances, page 205, January 3, 1918, and bounded and described as follows:

Parcel No. 1. Bounded on the north by land of Lydia M. Haight; and land of Ella B. Emmett; on east by westerly side of public highway from Main North Country Highway to Stony Brook Harbor, known as Shepherd Jones Lane; on the southeast by the middle of Main North Country Highway; on south by land belonging to Estate of George Powell, deceased; on west by land of Ella B. Emmett, containing about 21 acres, be the same more or less, being the same premises conveyed to Frederick S. Minott by Edmund N. Smith and wife by deed dated March 1, 1909 and recorded in the Suffolk County Clerk's Office, Liber 677, page 323;

Parcel No. 2. Thereof bounded on the north by land of Mary Pierson; on the east by the westerly side of the highway leading from the Main North Country Highway to Stony Brook Harbor, known as Shepherd Jones Lane; on the south by land of Edmund N. Smith; on west by land of Ella B. Emmett, containing 4 acres, be the same more or less, being same premises conveyed to Frederick S. Minott by Lydia M. Haight and Clarence M. Haight by deed dated February 24, 1909 and recorded in the Suffolk County Clerk's Office, Liber 677, page 321;

Parcel No. 3. Bounded on the north and east by the southerly and westerly side of a public highway leading from the Main North Country Road to Stony Brook Harbor, known as Shepherd

Jones Lane; south by the land of Lydia M. Haight; west by land of Ella B. Emmett, containing about 11 acres, be the same more or less, being the same premises conveyed to Frederick S. Minott by Mary F. and John A. Pierson by deed dated March 1, 1909 and recorded in the Suffolk County Clerk's Office, Liber 677, page 324;

WHEREAS, said JOHN M. PERRY left a last Will and Testament dated December 12, 1958 and admitted to private by the Surrogate's Court of Suffolk County on February 3, 1964 by which he devised any and all real property wheresoever situated of which he should die seized or possessed or to which he might be entitled at the date of his death or in which he might have any interest whatever and the improvements thereon; together with the appurtenances to his wife, MATILDE L. PERRY, FOURTH PARTY, during her lifetime with remainder to his issue in fee simple per stirpes; and

WHEREAS, OLIVER HAZARD PERRY and AUDREY PERRY BURNIER, THIRD PARTIES, constitute the issue of JOHN N. PERRY, deceased, and are now seized of the aforesaid real property in fee simple subject to a life estate of FOURTH PARTY; and

WHEREAS, FOURTH PARTY, is seized and possessed of real property situated on North Country Road, St. James, Suffolk County, New York, acquired by deed dated March 17, 1949 and recorded in the office of the County Clerk of Suffolk County in Liber 2942 of conveyances, page 463, April 26, 1949, and bounded and described as follows:

BEGINNING at locust stake in the northerly line of the land hereby conveyed, which stake is at the southwest corner of the farm of Edward N. Smith, running N. 83° 21' W 22.3' to a locust stake;

S 21° 22' W. 542.3 feet to a locust stake; thence S 42° 16' E 504.3 feet to highway leading from Smithtown to Stony Brook; thence northeast along highway to land of above named Edward N. Smith; thence west along land to point or place of beginning containing by estimation 9-1/2 acres of land, more or less, together with all interest in highway adjoining premises.

NOW, THEREFORE, in consideration of the mutuality hereof and other good and valuable consideration moving between the parties, the parties have agreed:

1. Upon the execution and delivery of this instrument, the aforesaid action shall be discontinued by consent without costs to any party as against any other party.
2. FIRST PARTY, its successors and assigns will at no time construct, erect or place any building other than a single-family dwelling or dwellings and buildings accessory thereto on that portion of its real property located at Flowerfield, Town of Smithtown, Suffolk County, New York, bounded and described as follows;

BEGINNING at a monument set in the southeasterly line of North Country road, where said line is intersected by the northeasterly line of land now or formerly of Louise Heisler; running from said point of intersection North 35° 33' 40" East, 790.80 feet along the southeasterly line of said road to a point on the southeasterly line of said road; thence North 38° 50' 30" East 178.77 feet still along the southeasterly line of said road to a point on the southeasterly line of said road; thence North 45° 48' East 272.39 feet still along the southeasterly line of said road to a point on the southeasterly line of said road; thence North 54° 24' East 321.25 feet still along the southeasterly side of said road; thence North 60° 51'50" East 236.78 feet still along the southeasterly side of said road to a point on the southeasterly line of said road; thence North 43° 20' 40" East, 192.72 feet still along the southeasterly side of said road to a point on the southeasterly side of said road, thence South 36° 28' 05" West, 943.62 feet to a point; thence South 45° 48' West, .59 feet to a point; thence south 38° 50'30" West .94 feet to a point thence South 35° 33'40" West, 787.96 feet to land now or formerly of Louise Heisler; thence North 53° 20' 30" West, along said land now or formerly of Louise Heisler, 300.05 to the point or place of beginning.

3. No parking lot or parking area shall be constructed or maintained by FIRST PARTY, its successors or assigns, within one hundred feet of the southeasterly line of North Country Road, except where the distance between the southeasterly line of North Country Road and the southeasterly boundary of the property hereinbefore described in paragraph 2 hereof is less than one hundred feet in which case no parking lot or parking area shall be constructed or maintained between the southeasterly side of Old Country Road and the southeasterly boundary of said property and, provided further, before devoting any portion of said property described in paragraph 2 hereinabove use as a parking lot, such parking lot or parking area

shall be screened from North Country Road by vegetation and maintenance of a natural screening of Norway Spruce immediately northeasterly along the line of the northwesterly boundary of such parking lot or parking area to full length thereof from west to east.

4. Any parking lot or parking area constructed by FIRST PARTY, its successors or assigns, within 100 feet of the easterly boundary of land now or formerly of Jankowski, Elderkin, Lampe and Semperad shall be screened from said properties by the installation and maintenance of ten (10) feet of lawn immediately east of the easterly line of said properties, followed by the installation and maintenance of a natural border of Norway Spruce immediately east of the ten (10) feet of lawn area and followed by the installation and maintenance of a five foot area of lawn between said Norway Spruce and the westerly most portion of the improved surface of the parking area, said combined lawn and planting area to be of a width equal to that of the said parking area.

DECLARATION OF COVENANTS AND RESTRICTIONS MADE BY GYRODYNE COMPANY OF AMERICA, INC. DATED AS OF 8/1/2002 AND RECORDED 8/22/2002 IN LIBER 12204 CP 947 [SEE PAGES C-37 TO C-44].

- This Declaration of Covenants and Restrictions establishes four restrictions applicable to defined portions of the site. First, this Declaration prohibits the construction or maintenance of any building or parking area in the area identified as Parcel 1 on Schedule B of this Declaration. Parcel 1, similar to the above-described Restrictive Covenant dated October 26, 1960, as amended, is located immediately adjacent to the south boundary of North Country Road (State Route 25A) and the east boundary of Mills Pond Road, falling within the 200-foot buffer established by the above-described Restrictive Covenant dated October 26, 1960. The area of the site identified as Parcel 1 is not improved with any existing buildings or parking areas. Likewise, the proposed subdivision does not propose to improve this area of the site with any buildings or parking areas. This Declaration also prohibits the construction or maintenance of buildings or parking areas not otherwise authorized in the R-43 district zone in the area identified as Parcel 3 on Schedule B. Parcel 3, located immediately adjacent to the east boundary of Mills Pond Road and south of Parcel 1, is improved with an existing two-story dwelling and carport, which are permitted uses in the R-43 District zone. No further improvements are proposed in the area identified as Parcel 3. Further, this Declaration limits the permitted use of Parcel 2, as identified on Schedule B, to the operation of a restaurant used as a catering facility. In compliance with the Declaration, Parcel 2, located immediately adjacent to and south of Parcel 1, and immediately adjacent to and east of Parcel 2, is improved with a single-story structure used as a catering facility. Finally, this Declaration establishes noise restrictions on the Swim Club (no longer in existence) and on all other facilities occupying Parcel 2. The catering facility, the sole facility on Parcel 2, has and will continue to comply with the noise restrictions established by this Declaration. Thus, the existing improvements on the property, as well as the proposed subdivision and the alternatives, comply with this Declaration of Covenants and Restrictions.

DECLARATION OF COVENANTS AND RESTRICTIONS

This Declaration of Covenants and Restrictions (the "Declaration") dated as of the 1st day of August, 2002 by GYRODYNE COMPANY OF AMERICA, INC. having offices at 102 Flowerfield, St. James, New York 11780 hereinafter referred to as the "DECLARANT'.

W I T N E S S E T H :

WHEREAS, the DECLARANT is the owner in fee simple of certain real property situate. lying and being at Flowerfield in the Town of Smithtown, County of Suffolk and State of New York being more particularly bounded and described on Schedule "A" and as shown on the map constituting Schedule "B" hereto attached and made a part hereof (the "Premises"); and

WHEREAS, upon petition by DECLARANT, by resolution (the "Rezoning Resolution") adopted on the 12th day of November 1996, the Town Board of the Town of Smithtown, classification of that portion of the Premises designated as "Parcel 1" from LI to R-43 and that portion of the Premises designated as "Parcel 2" from R-43 to LI, and

WHEREAS, as a condition of such resolution, the applicant was required to record in the Suffolk County Clerk's Office covenants with respect to the use of the Premises in order for the resolution to take effect.

NOW, THEREFORE, DECLARANT, in compliance with the condition of the resolution, hereby declares that the Premises are and shall be held, transferred, sold, conveyed and occupied subject to the covenants, conditions and restrictions hereinafter set forth.

1. No building or parking area shall be constructed or maintained within any portion of Parcel 1.
2. No building or parking area, except as authorized in the R-43 zoning classification, shall be constructed or maintained within any portion of Parcel 3.
3. The use of that portion of the Premises designated as Parcel 2 shall be limited to the operation of a restaurant used as a catering facility only and any other use of Parcel 2 will be prohibited unless authorized by the Town Board of the Town of Smithtown.
4. The maximum noise levels generated by the Swim Club and/or any facilities occupying any portion of Parcel 2 of the Premises shall not exceed the following limits: (a) between the hours of 7:00 am and 10:00 p.m. daily: 55dBA; (b) between the hours of 10:00 p.m. and 7:00 a.m. daily: (50dBA). The foregoing limits shall not be exceeded by any noise levels measured at or within the real property line of the receiving of the property.

This DECLARATION and the rights and obligations created hereunder shall be perpetual and shall run with the land and be binding upon and inure to the benefit of the heirs, successors and assigns of the DECLARANT.

IN WITNESS WHEREOF, the DECLARANT has executed and acknowledged this Declaration the 8th day of August 2002.

GYRODYNE COMPANY OF AMERICA, INC.
By: Steven Maroney

PROPERTY DESCRIPTION

ALL that certain plot, piece or parcel of land situate, lying and being at St. James in the Town of Smithtown, County of Suffolk and State of New York being more particularly bounded and described as follows:

Parcel 1

Beginning at a point at the Intersection of the Northeasterly side of Mills Pond Road and the Southeasterly side of North Country Road (N.Y.S Route 25-A); running thence Northeasterly from said point of beginning along the Southeasterly side of North Country Road (N.Y.S Route 25-A) the following three (3) courses and distances:

1) N 33° 27' 20" E 292.34'
2) N 34° 29' 31' E 275.98'
3) N 35° 33' 42" E 713.63' to a point;

running thence from said point through land of Gyrodyne of America S 53° 20' 28' E 200.00' to the Southerly side of this parcel; running thence Southwesterly along the Southerly side of the herein described parcel and still through land of Gyrodyne of America S 35° 35' 42" W 1,320.70' to the Northeasterly side of Mills Pond Road; running thence Northwesterly along the Northeasterly side of Mills Pond Road N 41° 15' 40" W 188.25' to the intersection of the Northeasterly side of Mills Pond Road and the Southeasterly side of North Country Road (N.Y.S Route25-A) and the point or place of beginning, containing within said bounds 5.87 acres.

Parcel 2

Commencing at the point of intersection of the southeasterly side of North Country Road (State Route 25A) with the northeasterly side of Mills Pond Road;

Thence south 53 ° 20' 30" east a distance of200' to the point or place of BEGINNING.
Thence, from said point of beginning, south 53° 20' 30" east a distance of 121.62'.
Thence south 00° 12' 00" west a distance of 730.34'.
Thence north 36° 44' 03" west a distance of 554.76;
Thence north 33° 27' 20" east a distance of 429.52' to the point of place of BEGINNING

Parcel 3

Beginning at a point on the Northeasterly side of Mills Pond Road 188.25' Southeast of the Southeasterly side of North Country Road (N.Y.S Route 25-A), as measured along the Northeasterly side of Mills Pond Road; running thence Northeasterly and Southeasterly through lands now or formerly of Gyrodyne of America N 350 35' 42' E 182.96' and S 360 43' 58' E 573.45 to the Northerly side of Parkside Avenue; running thence Westerly along the Northerly side of Parkside Avenue S 75° 17' 30" W 201.40' to the Northeasterly side of Mills Pond Road; running thence Northwesterly along the Northeasterly side of Mills Pond Road N 33° 48' 40" W 364.57' and N 410 15' 40' W 78°.53' to the point or place of beginning, containing within said bounds 2.06 acres.

ELECTRIC EASEMENT TO LONG ISLAND LIGHTING COMPANY DATED 7/21/1911 AND RECORDED 8/24/1915 IN LIBER 913 CP 48 [SEE PAGES C-1 TO C-2]; PARTIALLY RELEASED BY AGREEMENT DATED 8/4/1966 AND RECORDED 8/17/1966 IN LIBER 6013 CP 339 [SEE PAGES C-3 TO C-5].

- This electric easement grants the Long Island Lighting Company the "right to erect and maintain lines or wire for the transmission of electric current for light, heat and power, including the necessary poles, cross arms, wires, cables, guys, anchors and appurtenances." A partial release of the easement, provided below by Agreement dated August 4, 1966 and recorded August 17, 1966, solely impacts the property located east of the proposed subdivision site. Specifically, the partial release applies solely to the easement area extending from Stony Brook Road east to the adjoining boundary lines of the Town of Brookhaven and Town of Smithtown. The proposed subdivision and the alternatives will not impact this electric easement, as maintained.

THIS AGREEMENT, made this twenty-first day of July, 1911, between JOHN LEWIS CHILDS, party of the first part, and the LONG ISLAND LIGHTING COMPANY, a domestic corporation, hereinafter called the "ELECTRIC LIGHT COMPANY", party of the second part, WITNESSETH, that in consideration of the sum of one ($1.00) dollar by each to the other in hand paid, the receipt whereof is hereby mutually acknowledged, and of the covenants and agreements herein contained, the parties hereto, for themselves, their successors and assigns, hereby covenant and agree as follows: FIRST. The Party of the first part grants to the Electric Light Company the right to erect and maintain lines or wire for the transmission of electric current for light, heat and power, including the necessary poles, cross arms, wires, cables, guys, anchors and appurtenances, upon and along the private road leading from a point situated about three hundred (300) feet more or less, north of the Oxhead Road where the same crosses the Stony Brook to Ronkonkoma Road; thence in a westerly direction to what is commonly called McKittrick's Crossing. SECOND. The Electric Light Company hereby agrees to erect only straight, selected poles and that all work necessary to erect and maintain the hereinbefore mentioned lines shall be done under the direction and supervision of the party of the first part, or his agent. THIRD. The Electric Light Company agrees not to place upon any pole more than two cross arms for its wires and cables. FOURTH. The Electric Light Company further agrees that in the event of the property being sold, transferred, or in any way disposed of by the party of the first part to transfer the poles, wires and appurtenances to the nearest street or highway leading across the property in the hereinbefore mentioned directions as shall be designated by the then owner or owners, or at the option of the party of the first part in case of such sale or transfer, the Electric Light Company hereby agrees to either transfer said poles, wires and appurtenances to along the southerly boundary line or the property of the party of the first part or purchase a strip of land ten (10) feet wide along such southern boundary line at a pro rata price per acre, which was paid or received for such sale, on which to place such construction. FIFTH. The Electric Light Company is to assume all risk or liability for damage by reason of said pole, line, wires constructed across said property. IN WITNESS WHEREOF, The party of the first part has hereunto subscribed its name by its District Manager, who is duly authorized the role by its Board of Directors and affixed hereto its corporate seal by like order.

THIS AGREEMENT, made this 4th day of July, 1966, between the LONG ISLAND LIGHTING COMPANY, a New York corporation duly organized and existing under and by virtue of the laws of the State of New York, having an office at 250 Old Country Road, Mineola, Nassau County, New York, and SPRUCEDALE BUILDING CORPORATION, a domestic corporation having a place of business at 6090 Jericho Turnpike, Commack, New York and LEVITT AND SONS, INCORPORATED, a domestic corporation having a place of business at 325 Nesconset Highway, Hauppauge, New York.

WHEREAS by virtue of a certain agreement dated July 21, 1911 and recorded in the Suffolk County Clerk's office on August 24, 1915, in Liber 913 of Conveyances at Page 48, JOHN LEWIS CHILDS granted to the LONG ISLAND LIGHTING COMPANY certain electric transmission easements as described in said easement agreement, said easements being over and along property situate at Stony Brook, in the Towns of Brookhaven and Smithtown, Suffolk County, New York and lying between Stony Brook or Gould Road on the East and the Rail Road crossing formerly known as McKittrick's Crossing on the west, and

WHEREAS by Mesne Conveyances title to a portion of the lands affected by said grant of easement has been acquired by SPRUCEDALE BUILDING CORPORATION, LEVITT AND SONS, INCORPORATED and others, and,

WHEREAS, the parties hereto desire that the portion of said land and easement as set forth in said agreement hereinabove referred to owned by them be released from said easement and the parties have agreed that the LONG ISLAND LIGHTING COMPANY release said portion of the easements as granted by said agreement dated July 21, 1911 as hereinabove referred to.

NOW THEREFORE, in consideration of the sum of One Dollar ($1.00) and other good and valuable considerations, the receipt of which is hereby acknowledged, the LONG ISLAND LIGHTING COMPANY does herby release, abandon and surrender to said SPRUCEDALE BUILDING CORPORATION and LEVITT AND SONS, INCORPORATED, that portion only of said easement rights obtained by LONG ISLAND LIGHTING COMPANY by virtue of said agreement hereinabove referred to dated July 21, 1911 and recorded as aforesaid, said portion being hereby released being that portion of said easement lying between Stony Brook or Gould Road on the east and the boundary line between the Town of Smithtown and the Town of Brookhaven on the west.

It is the intention of the LONG ISLAND LIGHTING COMPANY to release only the said portion of the easement granted by said agreement dated July 21, 1911, it being expressly agreed that the remaining portion of said easement lying west of said boundary line between the Town of Smithtown and Town of Brookhaven shall remain in full force and effect.

IN WITNESS WHEREOF, the LONG ISLAND LIGHTING COMPANY has caused these presents to be signed on the day and year first above written.

Drainage Easements made by Gyrodyne Co. of America, Inc. to the Town of Smithtown dated 10/25/1996 and recorded 12/19/1996 in Liber 11806 Cp 976 [see pages C-45 to C-49], and dated 6/10/1997 and recorded 7/8/1997 in Liber 11839 Cp 509 [see pages C-50 to C-53].

- This drainage easement, dated October 25, 1996, is located at the northeast corner of the intersection of Mills Pond Road and North Country Road (State Route 25A), with a total area of 0.046 acres. The sole purpose of this easement is to provide the Town a right of way over real property to "construct, lay, relay, repair, operate, maintain and remove storm drainage pipe or pipes and other drainage appurtenances." The proposed subdivision and the alternatives do not impact this drainage easement, as maintained.

GRANT OF DRAINAGE EASEMENT

TEMPORARY EASEMENT made this 25 day of October, 1996, between GYRODYNE CO. OF AMERICA. INC., with offices at 7 Flowerfield, Suite 28, St. James, NY 11780, and TOWN OF SMITHTOWN, a municipal corporation, having its offices at the Town Hall, 99 West Main Street, Smithtown, New York, party of the second party:

WITNESSETH:

That the party of the first part for good and valuable considerations and the payment of the sum of ONE DOLLAR ($1.00) lawful money of the United States, paid by the party of the second part to the party of the first part, the receipt whereof is hereby acknowledged, DO HEREBY CONSENT, grant, convey and release to the party of the second part, its successors and assigns, a twenty year easement commencing 25 October, 1996, and right-of-way under, over, through and across the lands hereinafter described, situated at St. James In the unincorporated area of the TOWN OF SMITHTOWN, Suffolk County, Now York, in, under and upon which to construct, lay, relay, repair, operate, maintain and remove storm drainage pipe or pipes and other drainage appurtenances which will be maintained by and at the expense of the TOWN OF SMITHTOWN, with the right to set up, operate, repair and maintain the same and with a right of ingress and egress to and from said easement and right-of-way for such purposes. The said twenty year easement shall run with the land for the term of the easement. The real property over which said temporary easement is granted, conveyed and released hereby to the party of the second part is as follows:

SEE SCHEDULE "A" ATTACHED

At the conclusion of the temporary easement period, 25 October 2016, GYRODYNE or its successor shall accept the in-place drainage system in an "as is, where is" condition, with no further expense to the TOWN OF SMITHTOWN, provided that all links (weir) between the pond at Mills Pond end the Gyrodyne property have been severed and sealed.

IN WITNESS WHEREOF, the party of the first part has duly executed this garment, and the party of the first part has caused this agreement to be executed on its behalf by its duly authorized officer and its corporate seal to be hereunto affixed, the day and year first above written.

TOWN OF SMITHTOWN	GYRODYNE CO. OF AMERICA INC.
Patrick Vecchio, Supervisor	Dimitri F. Papadakos, President

PROPERTY DESCRIPTION

ALL that certain plot, piece or parcel of land located at St. James in the Town of Smithtown, County of Suffolk and State of New York being more particularly bounded and described as follows:

Beginning at a point formed by the Intersection of the easterly side of Mills Pond Road with the southerly side of N.Y.S Route 25A);

Running thence along the southerly side of N.Y.S. Route 25A North 33° 27' 20" E 97.60' to a point;

Thence S 1° 27' 07' E 17.28' to a point;
Thence S 33° 27' 20' W 70.68' to a point;
Thence S 41° 15' 40' E 64.31' to a point;
Thence S 1° 27' 07' E 23.41' to the easterly side of Mills Pond Road;
Thence along the easterly side of Mills Pond Road N 41° 15' 40" W 68.56' to the southerly side of N.Y.S. Route 25-A at the point or place of beginning.

Containing within said bounds 1,980 sq. ft. or 0.046 acres.
S.C.T.M. Dist 0800 40 02 p/o 13

GRANT OF DRAINAGE EASEMENT

EASEMENT made this 10th day of June 1997, between GYRODYNE CO. OF AMERICA. INC., with offices at 7 Flowerfield, Suite 28, St. James, NY 11780, and TOWN OF SMITHTOWN, a municipal corporation, having its offices at the Town Hall, 99 West Main Street, Smithtown, New York, party of the second party:

WITNESSETH:

That the party of the first part for good and valuable considerations and the payment of the sum of ONE DOLLAR ($1.00) lawful money of the United States, paid by the party of the second part to the party of the first part, the receipt whereof is hereby acknowledged, DOES HEREBY CONSENT, grant, convey and release to the party of the second part, its successors and assigns, a perpetual easement and right-of-way under, over, through and across the lands hereinafter described, situated at St. James In the unincorporated area of the TOWN OF SMITHTOWN, Suffolk County, Now York, in, under and upon which to construct, lay, relay, repair, operate, maintain and remove storm drainage pipe or pipes and other drainage appurtenances which will be maintained by and at the expense of the TOWN OF SMITHTOWN, with the right to set up, operate, repair and maintain the same and with a right of ingress and egress to and from said easement and right-of-way for such purposes. The said perpetual easement shall run with the land. The real property over which said easement is granted, conveyed and released hereby to the party of the second part is as follows:

SEE SCHEDULE "A" ATTACHED

This easement supersedes prior easement dated October 25, 1996, and recorded in the Suffolk County clerk's Office on December 19, 1996, in Liber 11806, at page 976.

IN WITNESS WHEREOF, the party of the first part has duly executed this garment, and the party of the first part has caused this agreement to be executed on its behalf by its duly authorized officer and its corporate seal to be hereunto affixed, the day and year first above written.

GYRODYNE CO. OF AMERICA INC.
Dimitri F. Papadakos, President

SCHEDULE "A"

DRAINAGE EASEMENT DESCRIPTION

ALL that certain plot, piece or parcel of land located at St. James in the Town of Smithtown, County of Suffolk and State of New York being more particularly bounded and described as follows:

Beginning at a point formed by the Intersection of the easterly side of Mills Pond Road with the southerly side of N.Y.S Route 25A);

Running thence along the southerly side of N.Y.S. Route 25A North 33° 27' 20" E 97.60' to a point;

Thence S 1° 27' 07' E 17.28' to a point;

Thence S 33° 27' 20' W 70.68' to a point;

Thence S 41° 15' 40' E 64.31' to a point;

Thence S 1° 27' 07' E 23.41' to the easterly side of Mills Pond Road;

Thence along the easterly side of Mills Pond Road N 41° 15' 40" W 68.56' to the southerly side of N.Y.S. Route 25-A at the point or place of beginning.

Containing within said bounds 1,980 sq. ft. or 0.046 acres.

S.C.T.M. Dist 0800 40 02 p/o 13

2.7. Design and Layout

The proposed mixed-use campus plan has been carefully laid out to be compatible with the surrounding area and preserve the existing landscape character. The subdivision layout was designed to enhance the buffer along Route 25A and to the R-43 zoned property, and to provide a pedestrian greenway throughout the site. The applicant is cognizant of the community's and the Town's desire to maintain the wooded and natural buffer along NYS Route 25A. Therefore, other than improvements to the existing curb cut, the subdivision plan will maintain the area as an open, 200-foot wide buffer. In total, the proposed mixed-use campus plan provides for approximately 49% of the total site area as open space (approximately 36.5 acres).

The design intent is also to create green spaces connecting the lots. About two (2) miles of walking trails and nature trails are designed within the expansive open space areas to be preserved. These open space areas will be open to the public. Additionally, several parking areas shall be designated as land banked parking to increase the green area on the property.

The proposed interior roads will have dedicated bike lanes, vegetated swales and tree-lined corridors to provide a campus environment and character, also providing traffic calming benefits and connectivity benefits to the surrounding road network. The dedicated bike lanes proposed on the campus roads will have direct connectivity to bike routes on NYS Route 25A and Mills Pond Road. Similar to existing hedgerows on the property, proposed tree plantings will frame open space areas and provide "classic" tree canopies framing the interior roadways.

The proposed landscape plantings will utilize indigenous trees, shrubs and groundcovers and strategically augment the existing landscape along the proposed campus roadways, campus entrances and reinforcement of buffers along NYS Route 25A and Mills Pond Road. Most existing trees will be protected and remain in place. Within the campus property, hundreds of mature evergreen trees and hedgerows will be preserved. The proposed plant list will include a mix of both native plants and ornamental plants. No invasive plantings will be introduced. The interior street tree plantings and foundation plantings will consist of both nursery-grown ornamental and native plantings. The introduction of native/indigenous plantings (trees, shrubs and groundcovers) is proposed to promote wildlife and reduce dependence on irrigation, fertilizers, and pesticides.

The proposed campus layout and landscaping plan has been developed using Low Impact Development (LID) principles – particularly to aid in stormwater management and the protection of local water quality. Wherever possible, natural areas will be maintained or improved. Integrated LID principles include the use of roadside vegetated swales, naturalized detention areas and catch basin inserts to provide additional filtration prior to groundwater recharge.

In addition, approximately 20 acres of successional field, meadow and the fresh water ponds will remain in place. The northerly pond area will be utilized as a major component of both the landscape and stormwater management system. Based on the estimated full development of the subdivision lots, a total of 45.17 acres (60.2% of the site) will consist of natural or managed landscaped areas.

High-level planning considerations that factored into the proposed layout include:

Lot 1 existing light industrial buildings: The access from Mills Pond Road is retained as an easement through Lot 1 to avoid dividing the lot across the access way

Lot 2 existing catering hall: No changes proposed, with the exception of a wastewater pumping station

Lot 3 landbanked parking: Accessed via a "Road C" connection to Lot 1 to serve as overflow parking, if needed

Lot 4 hotel: Vehicle/pedestrian connection to the Flowerfield catering hall for cross access and shared parking; drop-off area in front of the main door for hotel guests; the longest facades around the building face the vegetated Route 25A buffer and the existing ponds

Lots 5 and 6 medical or R&D office: The front of each building is oriented towards the same central landscaped green space/plaza

Lots 7 and 8 assisted living: The front of each building (designated by the inner portion of the "U" shape) is oriented towards the same central landscaped green space/plaza

Lot 9 common areas and interior roads: Two-lane interior roads (one lane in each direction) are provided for on-site traffic. The subdivision layout provides 60-foot road right-of-way, sufficient width for two travel lanes, bicycle lanes, and fire truck access (26 feet required, according to the latest Fire Prevention Code). The internal roads will also have roadside vegetated swales for stormwater flow and management. Interior cul-de-sacs have been laid out with 35-foot minimum inner radii, which is large enough to accommodate a UPS delivery truck[12] or similarly sized truck[13].

New York State Integrated Pest Management (IPM) Program

In addition to the proposed native and indigenous plantings associated with the Proposed Action, the overall landscape maintenance approach is an important consideration to mitigating potential environmental impacts associated with synthetic fertilizer applications and overuse of pesticide applications. Open space within Lot 9 will be managed by one landscape contractor. This provides for the opportunity to set minimum qualifications for the landscape contractor to be experienced with the implementation of Integrated Pest Management (IPM) principles and utilizing Organic Land Care Best Management Practices.[14] This type of qualification and commitment to land care management would be regulated through a property owners association. These principles and best management practices will provide an alternative to standard applications of fertilizers, pesticides and herbicides. Fertilizer and pesticide treatments would be limited and applied in a preventive measure and only on an as-needed basis as determined by a qualified landscape contractor. It is recommended that, at a minimum, Lot 9 (common area) require an IPM program as part of the site's ongoing monitoring and maintenance program.

2.8. Parking

Based on the Town of Smithtown Zoning Code, the various potential land uses will require 2,346 parking spaces, distributed among the various lots as follows:

Table 2-1: Required Parking

Lot	Land Use	Required Parking[15]
Lot 1	132,719 s.f. existing industrial-commercial	660
Lot 2	Existing Catering Hall (capacity for 874	1 per 4 people = 218.5 (219)
Lot 3	Landbanked Parking	0

[12] UPS Freight Fleet Guide accessed via http://ltl.upsfreight.com/shipping/instructions/Index.aspx?p=FINFO
[13] American Association of State Highway and Transportation Officials (AASHTO) *A Policy on Geometric Design of Streets and Highways, 5th Edition (2004) Exhibit 2-2: Minimum Turning Radii of Design Vehicles*
[14] New Jersey Agricultural Experiment Station. Organic Land Care Best Management Practices Manual. April 2017 https://njaes.rutgers.edu/pubs/publication.php?pid=E357
[15] Town of Smithtown zoning ordinance § 322-62 (Nonresidential Parking Schedule)
[16] Flowerfield catering hall Certificate of Occupancy provided to Cameron Engineering – see Appendix L page L-1

Lot	Land Use	Required Parking[15]	
Lot 4	Proposed 150-room Hotel with Restaurant	1.25 per room = 187.5 (188)	Lot 3 total: 379.2 (380)
	Proposed 10,000 s.f. day spa/fitness center	1 per 150 s.f. = 66.7 (67)	
	Proposed 500-seat Conference Center	1 per 4 seats = 125	
Lot 5	Proposed 55,350 s.f. Medical or R&D Office	1 per 150 s.f. = 369	
Lot 6	Proposed 74,650 s.f. Medical or R&D Office	1 per 150 s.f. = 498	
Lot 7	Proposed Assisted Living: 110 units	1 per unit = 110	
Lot 8	Proposed Assisted Living: 110 units	1 per unit = 110	
Lot 9	Proposed Common Area and STP	0	
Total Required Parking		2,346 spaces	

The Preliminary Subdivision Plan depicts how each lot would provide sufficient parking to satisfy Town code, using a mix of paved, land-banked, and shared parking. As shown below, Lot 1 will have access to 660 or more spaces because Lot 2 (a catering hall) utilizes little or no weekday daytime parking. Lot 2 will have more parking than required by code.

When one considers the paved parking, land-banked parking, and shared spaces that can serve two or three uses at different times, the site will function as if it has more than sufficient parking site-wide than what will be needed. Landbanked and shared parking are described in the Traffic Study and in Sections 9.3 (Parking) and 12.2.1 (Design Measures to Preserve Open Space).

Table 2-2: Provided Parking
Existing Lots

Lot	Land Use	Required Spaces	Total Provided
1	Mixed-Use Buildings	660 with full occupancy	441 (Shared parking satisfies remaining demand – see Table 9-3 on page 9-9)
2	Catering Hall	219	355 during evenings and weekends
Total Parking: Existing Uses		879	796

Proposed New Lots

Lot	Land Use	Required Spaces	Proposed Parking: Paved and Striped	Proposed Parking: Land-banked
3	Landbanked Parking	0	0	181
4	Hotel w/Restaurant	188	258	0
	Day Spa/Fitness	67		
	Conference Center	125	0	0
5	Medical / R&D Office	369	308	61
6	Medical / R&D Office	498	418	80
7	Assisted Living	110	110	0
8	Assisted Living	110	110	0
9	STP*	0		
Total Parking: New Uses		1,467	1,204	322

** Note: this excludes 2 spaces provided next to the STP since these spaces will be for maintenance vehicles only and will not be available to the public*

As explained in detail in Section 9, spaces in some lots will be shared with adjacent lots to satisfy parking demand without paving every individual required parking space. Total paved parking is 796 + 1,204 = 2,000 spaces, excluding 2 spaces by the STP that will not be available to the public. There will also be 322 land-banked spaces that could be paved in the future if they are needed.

2.9. Access Improvements

The proposed subdivision will make use of the existing site driveways on Mills Pond Road and NYS Route 25A. It will modify the existing NYS Route 25A driveway (also called the “Fairgrounds” driveway), and it will add a right-turn-only driveway on NYS Route 25A near the middle of the Gyrodyne frontage. See Figure 2-2: Site Access on page 2-25.

The main driveway will be the existing northernmost site access on Mills Pond Road at Parkside Drive (the most direct access to Flowerfield Celebrations). The two other Mills Pond Road driveways to the south mainly serve the existing light industrial uses. All three driveways on Mills Pond Road will remain as unsignalized T-intersections, each with one lane for entering traffic, one exiting lane for left and right turns combined, and stop signs controlling the exit maneuver onto Mills Pond Road.

The other main driveway will be a new driveway on NYS Route 25A approximately halfway between Mills Pond Road and the existing NYS Route 25A “Flowerfield Fairgrounds” driveway (which is roughly 600 feet east of Ashleigh Drive). Based on past direction from NYSDOT associated with earlier applications at this property[17], this new driveway will be configured as a right turns-only unsignalized T-intersection.

The existing easternmost driveway will remain an unsignalized T-intersection with stop sign control. It will serve the on-site sewage treatment plant and will also provide another egress from Lots 7 and 8 for drivers who want to head east after they exit. This existing low-volume driveway will likewise be configured for right turns in and out only, per NYSDOT direction associated with the prior DEIS and subsequent applications.

Gyrodyne has been actively coordinating the proposed re-opening of the railroad crossing between the Flowerfield site and the Stony Brook R&D Park. While significant progress has been made in this effort, including support from Stony Brook University, there is still a degree of uncertainty as to when this might be accomplished. Timing associated with LIRR and NYSDOT involvement and with one or more public hearings required to secure an approval results in an uncertain timeframe. Accordingly, Gyrodyne has modified the proposed Preliminary Subdivision Plan to clarify the railroad crossing as a “possible/future re-opening of railroad crossing”. The updated Preliminary Subdivision Plan would not result in the re-opening the railroad crossing.

[17] NYSDOT correspondence to Cameron Engineering, provided in Appendix B: Correspondence, dated September 30, 2007 and October 29, 2010.

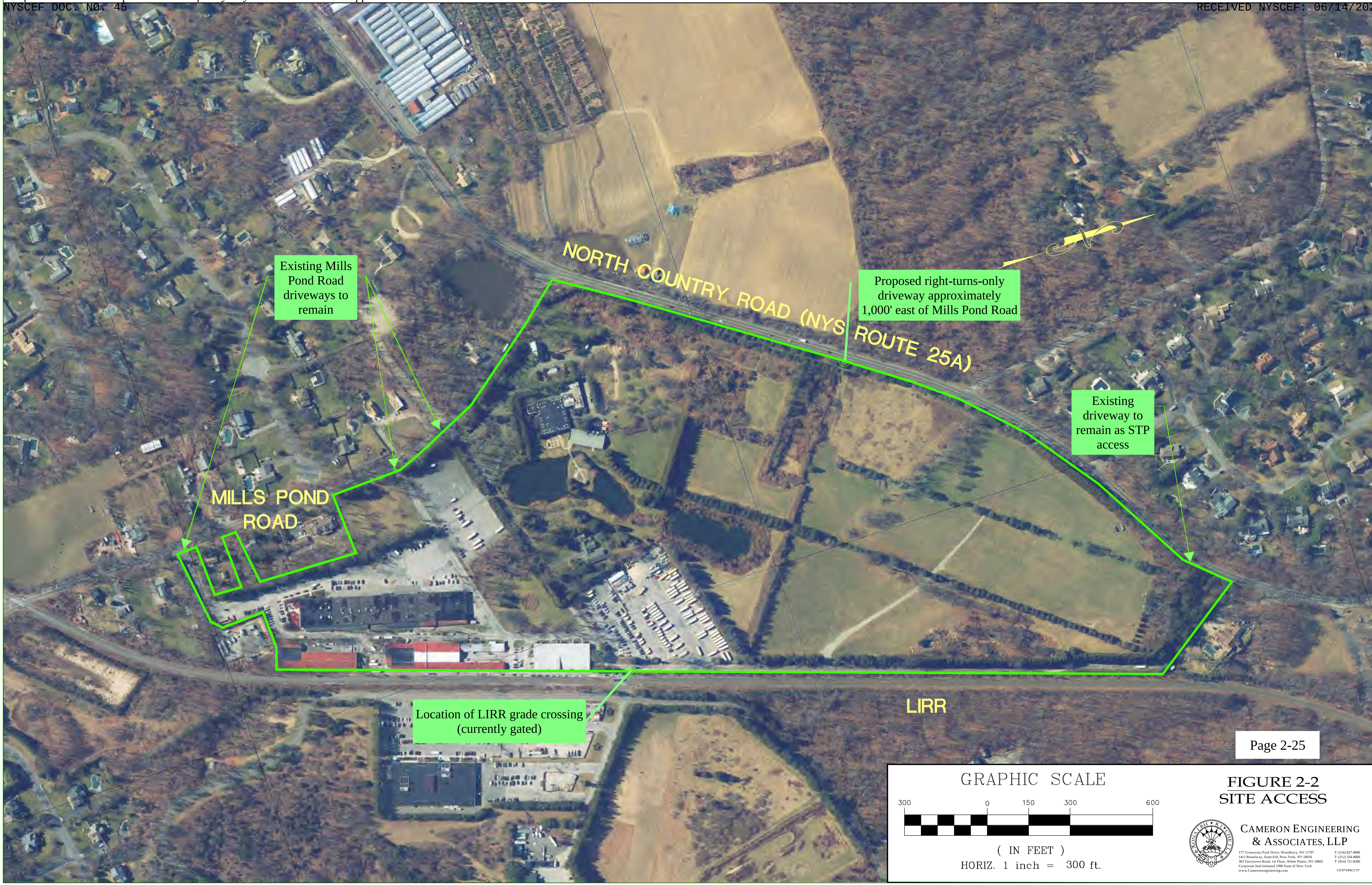


FIGURE 2-2
SITE ACCESS

2.10. Circulation

There will be a new internal road system to provide access to each lot and to connect the site driveways. The internal roads (to be privately owned and maintained) will be designed to accommodate internal traffic while preventing non-site traffic from "short-cutting" through the property. The driveways will be modified as necessary with respect to lane width, grading, and signage, to accommodate site traffic. The internal roads will have directional signage to route drivers to local streets.

2.11. Sustainability, Use and Conservation of Energy

It is premature to identify each specific "green" strategy while the subdivision process is ongoing. Specific environmentally friendly construction/design elements will be developed for Town approval during the site plan and building permit process. The latest subdivision plan includes shared parking between adjacent lots, as well as more than 180 land-banked parking spaces that will remain green unless they are truly needed. This will minimize the potential heat island effect from paving existing green space.

The applicant anticipates that future property owners will be encouraged to evaluate and develop a range of strategies as they develop their individual lots, such as:

- Minimizing the area of each lot to be disturbed
- Considering native, drought-tolerant vegetation to minimize irrigation needs
- Considering Low Impact Development (LID) principles for stormwater management
- Considering siting and architectural designs to maximize passive daylighting
- Considering rainwater harvesting to reduce stormwater run-off
- Considering solar panels
- Considering high-efficiency plumbing fixtures and HVAC equipment
- Considering LED lighting fixtures
- Considering use of local/regional materials, renewable materials, and recycled content
- Considering indoor air quality management practices during and after construction
- Considering low emitting materials (paints, coatings, solvents, adhesives, carpets, etc.) that minimize off-gassing
- Considering high R-value materials for building envelopes, glass, ducts, pipes, etc.

<u>Energy for Construction</u>
The construction process would consume energy in the fabrication of the materials used to construct the new buildings and infrastructure (approximately 75%) and during the delivery and assembly of construction materials (approximately 25%).

<u>Complete Streets-Bicycle Accommodations</u>
The proposed interior road cross section includes striped bicycle lanes to provide designated cycle paths as well as to visually narrow the remainder of the travel way, which is considered an interior traffic calming measure to encourage lower travel speeds. Bicycles will be able to connect to the "Share the Road" bicycle route on Route 25A.

2.12. Permits and Approvals Required

Following the completion of SEQRA, various permits or approvals would be required for the Proposed Action to be carried out. Table 2-3 below indicates the Subdivision phase's required approvals; Table 2-4 follows on page 2-27 with the approvals that will be required during the site plan phase (post-subdivision).

Table 2-3: Permits and Approvals (Subdivision Phase)

Agency	Type of Permit or Approval
Town of Smithtown Planning	Subdivision
Town of Smithtown Engineering Department	Stormwater Pollution Prevention Plan (SWPPP)
Suffolk County DHS	Subdivision, On-Site Sewage Treatment Plant (STP)
Suffolk County Planning	Subdivision Referral (complete as of 2018)
NYSDEC	Freshwater Wetlands Permit, SPDES Permit for On-site STP
NYSDOT	Highway Work Permits

Table 2-4: Permits and Approvals (Post-Subdivision Phase)

Agency	Type of Permit or Approval
Town of Smithtown Town Board	Site Plans for individual lots
Town of Smithtown Engineering Department	Stormwater Pollution Prevention Plans (SWPPPs) for individual lots
Town of Smithtown Building Department	Building Permit, Sign Permit
Town of Smithtown Board of Zoning Appeals	Modification of steep slopes (if applicable on individual site plans)
St. James Water District	Connect new uses to public water system
NYSDEC	Freshwater Wetlands Permit, General Permit for Stormwater Discharges from MS4s
Town of Brookhaven	Off-site traffic improvements involving Stony Brook

In addition, in the event that there is a future re-opening of the railroad crossing, approvals will be needed from NYSDOT/MTA/LIRR. In addition, these agencies may require public hearings prior to granting any approval for re-opening the railroad crossing.

2.13. Construction and Schedule

<u>Duration of Construction</u>

No construction is anticipated on Lot 1 or Lot 2, with the exception of a wastewater pumping station. The newly subdivided lots 3 through 9 would have new buildings, parking, roads, landscaping, and utility infrastructure, with the building on Lot 9 consisting of the proposed STP.

Construction duration and schedules cannot be determined at this preliminary stage. These features depend in large part on the eventual sale dates of each lot, and on whether the entities buying from Gyrodyne, LLC purchase one lot or multiple lots. Additionally, market conditions at the time(s) of sale will dictate the need for and the duration of market absorption of the assisted living units and/or office tenants. Based on the lot sizes (±2.15 to ±6.03 acres) and the ability to site a single building on each lot according to the Subdivision Plan, each lot could foreseeably be built and developed in a single phase. It is also possible that each lot could be developed separately, or that multiple lots could be developed at the same time with some degree of overlap. The STP on Lot 9 will be built prior to the occupancy of any new land use associated with this subdivision.

On the Preliminary Subdivision Plan, the amount of "cut" material to remove from the property is just under 38,000 cubic yards for the roads, drainage reserve areas (DRAs), and STP leaching areas. At this preliminary stage, 30-yard and 40-yard trucks are being considered for these tasks (67% 40-yard trucks). The time required for this task is controlled by the volume of material to be removed, adjusted with a 5% "fluff" factor to account for the fact that moving the material will introduce air voids, and the material will not be packed down for transport. As shown in Appendix M (page M-2) the net calculated total is 37,124 cubic yards (37,897 cubic yards of cut and 773 cubic yards of fill). For the purposes of this calculation, the proposed DEIS considers 38,000 cubic yards of cut to be conservative:

- 38,000 cubic yards + 5% fluff = 39,900 cubic yards of space needed
- 67% 40-yard truck size and 33% 30-yard truck size represents an average truck size of 36.7 cubic yards
- The total cut volume could take 988 trips:
  - (38,000 cubic yards x 1.05) / 36.7 average cubic yards per truck = 1,088 trips
- These trip numbers are then increased by 10% to be conservative and to account for individual days when conditions may not permit work (i.e., holidays, inclement weather, potential truck breakdowns):
  - 1,088 x 1.1 = 1,197 total trips
- 30-yard trucks can be loaded in approximately 15 minutes, and 40-yard trucks can be loaded in approximately 30 minutes. This works out to an average of 25 minutes per truck (2-3 truckloads per hour in any one area). If there are ten working hours per day, there will be 24 truck hauls per day, so these tasks will require roughly 50 days:
  - 1,197 total trips / 24 trips per day = 50 days

This document considers construction occurring between 2019 and 2020. It is the applicant's opinion that shifts in this timeframe will not impact the findings in this DEIS because the annual ambient growth rate is small (less than 0.5 percent per year – see Appendix F page F-37).

<u>Daily Construction Schedule</u>

Construction activities (e.g. grading and excavation) would be confined to weekday hours between 7:00 a.m. and 6:00 p.m. to abide by Town noise ordinance requirements (see Section 14.2 on page 14-1). Idling of heavy equipment will be restricted to five minutes per hour during the weekday hours of 8:00 a.m. to 6:00 p.m., also to abide by the Town noise ordinance.

3. Geology

3.1. Existing Conditions

Long Island's geology is especially important because it relates to the entire population's source of drinking water. Because all of Nassau and Suffolk County drinking water is derived from groundwater, the geological formations which retain the groundwater are collectively referred to as a "sole-source aquifer." These aquifers are recharged by rainfall, and consequently, all activities that occur at the surface have the potential to impact the quantity and quality of the aquifers' recharge.

Long Island ultimately rests on bedrock, which is impermeable rock composed of schist and gneiss. The bedrock under Suffolk County varies in depth from 400 feet below sea level at Lloyd Neck to 2,200 feet below sea level in the south-central part of the county. The bedrock is overlain by Cretaceous sediment called the Raritan formation and the Magothy formation.

The Lloyd Aquifer rests on bedrock and is isolated from the shallower Magothy Aquifer by a 100-foot thick layer of clay. The Lloyd aquifer and the overlying clay are part of the Raritan formation, which consists of fine- to coarse-grained sand and gravel.

The Magothy formation consists of sand, silt, and clay fluvial deposits with scattered clay lenses. Part of the Magothy formation is overlain by Jameco gravel, which is believed to have been deposited by glaciers of the Kansan stage. These deep gravel deposits are mainly in the southwestern part of Suffolk County and their extent is unknown. Elsewhere, the Magothy formation is overlain by marine clay identified as Gardiner's clay. This formation is thought to be an interglacial deposit, possibly of the Sangamon interglacial stage. In still other parts of Suffolk County, the Magothy is overlain directly by upper Pleistocene deposits.

3.2. Potential Impacts of Proposed Subdivision

Only the surface glacial deposits would be impacted by new development at the Flowerfield site. Grading activity would result in removal and deposition of material throughout the site (see following sections on Soils and Topography). However, this only affects surface deposits, so there is no anticipated impact to deeper geological layers.

3.3. Proposed Mitigation

Mitigation for the effects of site grading is discussed in the following sections on Soils and Topography.

4. Soils

4.1. Existing Conditions

The Web Soil Survey of Suffolk County[18] characterizes the soils of Suffolk County and separates them into "series" and "phases." Series are broken down into phases based on differences in texture of the surface soil and in slope, stoniness, or some other difference that affects the use of the soil by man. A total of seven soil types were identified on the project site including soils from the Carver Series (CpE), the Haven Series (HaB), the Raynham Series (Ra), the Riverhead Series (RdA, RdB, RhB), and the Scio Series (SdB).

Figure 4-1 on page 4-5 maps the locations and extents of each of these soil types on the Flowerfield site. The following details the attributes of the series and soils.

Carver Series
The Carver series consists of deep, excessively drained, coarse-textured soils. These soils range from nearly level to steep and are found throughout Suffolk County on rolling moraines and broad outwash plains. Slopes range from 0 to 35 percent.

In a representative profile, the surface has a thin layer of leaf litter and partly decayed organic matter. Below the surface is a surface layer of dark gray sand that is about 3 inches thick. The subsurface layer is gray or light-gray loose sand to a depth of 8 inches. The subsoil is loose sand to a depth of about 22 inches. The upper part of the subsoil is brown and the lower part of the subsoil is strong brown. The substratum, to a depth of 60 inches, is loose sand that contains some gravel. It is light yellowish-brown to brownish-yellow to a depth of 31 inches. Below this 31-inch depth, the substratum is light yellowish-brown.

Carver soils have very low available moisture capacity. Natural fertility is very low. Permeability is rapid throughout.

> CpE - Carver and Plymouth Sands, 15 to 35 percent slopes - These soils are almost exclusively on moraines, except for a few steep areas on side slopes along some of the more deeply cut drainage channels on outwash plains. On morainic landforms, these areas are large and slopes are generally complex. On the outwash plains, the areas are in long, narrow strips parallel to the drainage channels. Soils may be any combination of Carver and Plymouth series. The Carver soil has a profile described as representative of that series, except that the gravel content is greater. The Plymouth soil has a profile described as representative of that series, except that its texture is sand rather than loamy sand, and it also has a higher gravel content.
>
> CpE soils cover approximately 2.3 percent (i.e., 1.7 acres) of the 74.98-acre site.

Haven Series
The Haven series consists of deep, well-drained, medium-textured soils that formed in a loamy or silty mantle over stratified coarse sand and gravel. These soils are present throughout the county, but most areas with Haven series soil are on outwash plains

[18] USDA Natural Resources Conservation Service Web Soil Survey accessed May 3, 2017 via https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

between the two terminal moraines. Slopes range from 0 to 12 percent, but they are generally flatter at 1 to 6 percent.

In a representative profile, a thin layer of leaf litter and decomposed organic matter is on the surface in wooded areas. Below this is the surface layer of dark grayish-brown loam that is about 3 inches thick. The subsoil is dark brown to strong brown friable loam to a depth of about 19 inches. The lower part, to a depth of 28 inches, is yellowish-brown, friable gravelly loam. The substratum, to a depth of 55 inches, is yellowish-brown to brownish-yellow loose sand and gravel.

Haven soils have high to moderate available moisture capacity. Natural fertility is low. Internal drainage is good. Permeability is moderate in the surface layer and subsoil, and it is rapid or very rapid in the substratum.

> HaB - Haven Loam, 2 to 6 percent slopes – This soil is on outwash plains and moraines, commonly along shallow, intermittent drainage channels. Slopes are short. In larger areas, this soil is mostly undulating. It has the profile described as representative of the series. The HaB soils cover approximately 5.3 percent (i.e., 4.0 acres) of the 74.98-acre site.

<u>Raynham Series</u>

The Raynham series consists of deep, poorly drained to somewhat poorly drained, medium-textured soils that formed in loam, very fine sandy loam, or silt loam. This soil generally is around tidal marshes and creeks of the south shore and in areas around the headwaters of the Peconic River. Slopes are less than 3 percent, and in many places, the areas are concave. Native vegetation consists of red maple and blackgum and high bush blueberry. Some white oak and pitch pine also grow.

> Ra - Raynham Loam - This is the only Raynham soil mapped in the County. This nearly level soil is found in low-lying areas beside marshes and creeks. In many places, it forms a transition between poorly drained areas and better-drained areas on uplands. It is on outwash plains and moraines. Areas are generally small and irregular. Included with this soil in mapping are wet spots of Berryland soils and a very poorly drained silt loam soil. Also included are soils with a water table at a similar depth as Raynham soils, but which lack the Raynham soil’s gray color, which have slightly coarser subsoil, and which have sand and gravel below a depth of 30 inches. The hazard of erosion is slight on this Raynham soil. The Ra soils cover approximately 1.3 percent (i.e., 1.0 acre) of the 74.98-acre site.

<u>Riverhead Series</u>

The Riverhead Series consists of deep, well drained, moderately coarse-textured soils that formed in a mantle of sandy loam or fine sandy loam over thick layers of coarse sand and gravel. These soils occur throughout the County in rolling to steep areas on moraines and in level to gently sloping areas on outwash plains. These soils range from nearly level to steep, though they are generally nearly level to gently sloping.

In a representative profile, the surface layer is brown to dark brown sandy loam about 12 inches thick. The upper part of the subsoil, to a depth of about 27 inches, is strong brown, friable sandy loam. The lower part of the subsoil is yellowish-brown, very friable loamy sand to a depth of about 32 inches. Below is yellowish-brown, friable gravelly loamy sand to a depth of about 35 inches. The substratum is very pale brown and brown loose sand and gravel or sand to a depth of 65 inches.

Riverhead soils have moderate to high available moisture capacity. Internal drainage is good. Permeability is moderately rapid in the surface layer and in the subsoil, and it is very rapid in the substratum. Natural fertility is low.

> RdA – Riverhead Sandy Loam. 0 to 3 percent slopes – This soil had the profile described as representative of the series. It is generally on outwash plains, and the areas are large and uniform. Where this soil occurs on outwash plains, it generally has slope characteristics of this landform. Slopes are undulating in places. A few small, irregular areas are on moraines. The RdA soils cover approximately 14.3 percent (i.e., 10.7 acres) of the 74.98-acre site.

> RdB – Riverhead Sandy Loam, 3 to 8 percent slopes – This soil is on moraines and outwash plains. It generally is in areas along shallow, intermittent drainageways. Slopes generally are moderately short, but large areas on moraines are undulating. The profile of this soil is similar to the one described as representative of the series, though the surface layer is likely to contain a slightly larger amount of gravel. The RdB soils cover approximately 25.6 percent (i.e., 19.2 acres) of the 74.98-acre site.

> RhB – Riverhead and Haven Soils, graded, 0 to 8 percent slopes – This soil consists of areas of Riverhead sandy loam, Haven loam, or both. The areas have been altered by grading operations for developmental purposes. Originally, the Riverhead and Haven soils each had the profile described as representative of its respective series, but grading operations have left a man-made profile that is significantly different. The RhB soils cover approximately 42.5 percent (i.e., 31.9 acres) of the 74.98-acre site.

<u>Scio Series</u>
The Scio series consists of deep, moderately well drained, medium-textured soils that formed in a mantle of very fine sandy loam, loam, or silt loam over coarse sand and gravel or compact glacial till. These soils are throughout the County on moraines and outwash plains. They are generally in low lying areas between poorly drained to somewhat poorly drained Raynham soils and better drained Haven soils. Slopes range from 0 to 6 percent, but are generally from 0 to 2 percent. Slopes are concave in many places.

In a representative profile, a thin layer of leaf litter and decomposed organic matter is on the surface in wooded areas. Below this mat is a surface layer of silt loam about 7 inches thick. It is very dark brown in the upper part and brown to dark brown at a depth of about 4 inches. The subsoil extends to a depth of about 28 inches. It is yellowish-brown, friable silt loam that is mottled below a depth of about 19 inches. The substratum, to a depth of about 38 inches, is firm, mottled, yellowish-brown silt loam. Below, to a depth of 61 inches, is firm, gray to light gray, fine, sandy loam till that has streaks and splotches of strong brown.

Scio soils have moderate to high available moisture capacity. In the till substratum phase, permeability is moderate in the surface layer and in the upper part of the subsoil and it is moderately slow in the lower part of the subsoil and in the substratum. In the sandy substratum phase, permeability is moderate in the surface layer and in the subsoil and it is rapid in the substratum.

SdB – Scio Silt Loam, Sandy Substratum, 2 to 6 percent slopes – This soil is throughout the County on moraines and outwash plains. It is on gentle side slopes of depressions or in areas between well drained Haven soils and lower lying areas of somewhat poorly drained soils. Areas are generally small. Its profile is representative of the series. The SdB soils cover approximately 8.4 percent (i.e., 6.3 acres) of the 74.98-acre site.

Soil Limitations

Soil limitations[19] are shown in Table 4-1 below (page 4-4) and in Figure 4-1 on page 4-5. With the exception of CpE and Ra soils (which are not in the areas to be developed), there are only slight to moderate limitations.

Table 4-1: Soil Limitations

Soil	Sewage Disposal Fields	Homesites	Streets and Parking Lots	Lawns and Landscaping	Pipelines
CpE	Severe	Severe	Severe	Severe	Severe
HaB	Slight	Slight	Moderate	Slight	Moderate
Ra	Severe	Severe	Moderate	Moderate	Severe
RdA	Slight	Slight	Slight	Slight	Moderate
RdB	Slight	Slight	Moderate	Slight	Moderate
RhB	Slight	Slight	Moderate	Slight	Moderate
SdB	Moderate	Moderate	Moderate	Slight	Moderate

[19] United States Department of Agriculture (USDA) Natural Resources Conservation Service Soil Survey Manual - Chapter Six, accessed via https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/ref/?cid=nrcs142p2_054256

Soil Map—Suffolk County, New York
(Gyrodyne Soil Map)

Figure 4-1: Existing Soil Conditions

Map Scale: 1:6,360 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84

Natural Resources Conservation Service

Web Soil Survey
National Cooperative Soil Survey

Note: USDA sourced the soil types and the street names on this map.

Figure 4-1 (Continued)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Suffolk County, New York
Survey Area Data: Version 14, Sep 24, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

4.1.1. Past Agricultural Use

Since the property had been used for agricultural purposes, a Surface Soil Sampling Report was conducted by P.W. Grosser Consulting, Inc. (PWGC) in 2006 (see Appendix I page I-46), followed by Soil Management Plan in 2007 (see Appendix I page I-47). The purpose of these studies was to determine if there would be any special soil handling requirements associated with the proposed subdivision. In accordance with the Suffolk County Department of Health Services (SCDHS) guidance document *Standard Operating Procedures for Subdivisions, Developments, and Other Constructions Projects with Potentially Contaminated Soils* (Draft, February 2006), PWGC investigated the site to address the potential environmental concerns related to new development on this former agricultural site. The investigation included twenty-eight soil borings and forty-seven soil samples that were submitted to a NYS Department of Health-certified laboratory. All forty-seven samples underwent metals analysis and twenty-eight surface samples underwent polychlorinated pesticide analysis. In accordance with SCDHS guidelines, the sample results were compared to the United States Environmental Protection Agency (EPA) Soil Screening Levels (SSLs) with the exception of arsenic, which was compared to the County's Soil Screening Action Level (SSAL) of "6 parts per million" (ppm). This SSAL is based on the County's soil screening data for arsenic, which is a smaller, more restrictive threshold than other recommended clean-up objectives: the New York State Department of Environmental Conservation (NYSDEC) recommends "7.5 ppm" and the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 Eastern U.S. background soil concentration range of 3 to 12 ppm.

No pesticides were found above the SSLs. Arsenic was found at concentrations above the 4 ppm SSAL in multiple samples collected at "0 to 2 inches below grade" and at "4 to 6 inches below grade." No other metals were found above the SSLs.

The arsenic concentrations found in all the samples were within the Eastern United States range (3 to 12 ppm). Arsenic was found in one sample deeper than six inches, and since the arsenic was primarily found in the surface soils above the SSAL, it was believed that the higher arsenic concentrations were related to past pesticide use.

In 2017, the Phase I ESA (see Appendix I page I-1) performed at the site (summarized below in Section 4.1.2) found that concentrations of metals and pesticides in surface soils at the site were generally below current NYSDEC Unrestricted Use Soil Cleanup Objectives. As the 2006 soil sampling data (see Appendix I page I-46) and 2007 soil sampling data (see Appendix I page I-47) illustrate that pesticides and metals in surface soils do not appear to significantly exceed current NYSDEC Unrestricted Use Soil Cleanup Objectives, PWGC does not consider the historical usage of the site for agricultural purposes to be a Recognized Environmental Condition (REC).

4.1.2. Past Industrial Use and Studies

This site has been studied multiple times between 1993 and 2017 – with remediation reports completed in 2018. The 2017 Phase I ESAs, Phase II ESAs and 2018 Remediation Reports are provided in Appendix I: Phase I-Phase II Environmental Site Assessments.

Of note, reports which pre-date November 2005 include the current subject property plus the parcel south of the LIRR tracks that was acquired by New York State for the University R&D Park.

- 1993 Phase I Environmental Site Assessment (ESA)
- 1997 Review of Environmentally Sensitive Land Report
- 2003 Phase I ESA (Executive Summary reviewed for this document)
- 2004 Phase II ESA (partial copy reviewed for this document)
- 2006 Surface Soil Sampling Report
- 2007 Soil Management Plan
- 2008 Industrial Area Sampling Report
- 2010 Phase I ESA
- 2011 Underground Injection Control (UIC) Structure Remediation Report
- 2013 Phase I ESA (Executive Summary reviewed for this document)
- 2017 Phase I ESAs
- 2017 Phase II ESAs
- 2018 Remediation Reports

In 2008, PWGC prepared an Industrial Sampling Report to document the findings of the soil sampling investigation (see Appendix I page I-48). The investigation was performed in accordance with the March 12, 2008 work plan which had been submitted to the Town of Smithtown.

Industrial Area Sampling Report (Appendix I p. I-48)

The 2008 scope of work consisted of sampling the primary leaching structures of the on-site sanitary systems associated with the active industrial buildings. Six surface soil samples were collected and analyzed for Volatile Organic Compounds (VOCs) and Semi-VOCs (SVOCs) to assess whether the soils surrounding the industrial area have been impacted by the site's industrial uses.

On-Site Sanitary Systems

PWGC sampled the primary leaching structures of the nine on-site sanitary systems. PWGC inspected each of the systems in order to determine which structure was the primary structure. In cases where multiple structures were in a primary configuration, PWGC chose the primary structure based upon piping heights.

PWGC utilized a stainless steel hand auger to collect a sediment sample from the base of each structure. At the site, PWGC observed an additional leaching structure at the southwest corner of Building 2, which had not been identified at the time the March 2008 work plan was prepared. The structure was sampled and identified as BLDG 2–SW. All samples were submitted to a New York State Department of Health certified laboratory and analyzed for VOCs, SVOCs, and Metals as per the Suffolk County Department of Health (SCDHS) SOP 9-95.

A summary of the findings by parameter are as follows:

- VOCs and SVOCs – Analytical results revealed levels of VOC and SVOC compounds in each of the samples, however, each of the detected compounds were well below their respective SCDHS action levels.

- Metals – Analytical results for metals revealed that five of the ten structures (systems 7, 8, 9, 10, and 12) contained elevated levels of metals. The elevated metals compounds include mercury, cadmium, chromium, copper, and silver.

Surface Soil Sampling
To determine if the current and former industrial uses of the property have impacted the surrounding surface soils, PWGC collected surface soil samples from six locations that were previously sampled for metals and pesticides. The six sampling locations were those which were located in the vicinity of the industrial area. A shallow soil sample (0-6" below grade) was collected at each location utilizing a decontaminated hand auger, and the samples were analyzed for VOCs and SVOCs, since metals and pesticides were already analyzed for these samples.

Analytical results of this sampling was compared to the NYSDEC-recommended Soil Cleanup Objectives (RSCOs) contained in TAGM Memo #4046. No VOCs were found in the six surface soil samples. No SVOCs were found in four of the six samples. The two other samples (SB-27 and SB-28) contained levels of SVOCs which exceeded their respective TAGM RSCOs for one or more compounds. Each of the elevated compounds was detected at concentrations which slightly exceeded their RSCO. Based upon the location of the sample locations near roadways and parking areas, the detected SVOC compounds are likely related to road runoff rather than the former/current industrial uses of the property.

2017 Phase I ESA (prepared by PW Grosser Consulting-PWGC) (Appendix I p. I-1)

The scope of the Phase I ESA included a visual inspection of the site and surrounding areas, interviews, a review of historical information and aerial photographs (including Sanborn fire insurance maps and a historical telephone directory), and a review of pertinent local, state, federal and facility records. The research identified reported listings for the site and off-site properties within the ASTM-designated radius. Databases included federal and state lists of known or suspected contaminated sites, lists of known handlers or generators of hazardous waste, lists of known waste disposal facilities, and lists of above-ground and underground storage tanks (ASTs and USTs).

For the Phase I, upon evaluating the findings associated with this property, PWGC identified seven RECs (Recognized Environmental Conditions), one HREC (Historical REC), and no CRECs (Controlled REC). Based on the identified RECs, PWGC recommended a Phase II ESA that was to include:

- A geophysical survey to identify potential USTs and/or confirm that potential historical USTs have been removed from the catering facility's main building and nearby house.
- Collection and analysis of soil samples from UST and/or former UST locations identified by the geophysical survey to confirm there was no petroleum release.
- Tightness testing and/or soil borings in the vicinity of the House B UST to evaluate whether leakage has occurred.
- Characterization sampling of the catering facility main building's sanitary systems and the industrial area's sanitary systems and storm drains.

The Phase I noted that with plans for an on-site STP, SCDHS will require the existing on-site sanitary systems to be properly closed (including sampling of on-site sanitary systems) and all buildings to be connected to the STP. As the industrial area's sanitary systems were previously sampled and remediated, PWGC asked if SCDHS would delay additional sampling until the STP is completed. SCHDS provided an email response[20] on June 27, 2017 that the sanitary systems and storm drains should be included as part of a Phase II ESA, and that only structures determined to be impacted by the Phase II ESA may require re-sampling prior to abandonment when the STP is completed.

Previous environmental investigations at the site identified low-level metals in soils throughout former agricultural areas. Based on these findings, SCDHS required a Soil Management Plan to specify engineering controls and monitoring requirements for these soils during redevelopment. The metals concentrations detected prior to development of the Soil Management Plan are generally below NYSDEC Unrestricted Use Soil Cleanup Objectives. Additionally, SCDHS never formally adopted the guidance document on which the Soil Management Plan was based. In its June 29, 2017 email[20], SCDHS indicated that they no longer regulate soil management as part of subdivision approval, and that responsibility falls on local townships (i.e. the Town of Smithtown). It therefore appears the 2007 Soil Management Plan is no longer required.

Although ASTs appear to be in good condition with no evidence of leakage, the total number of ASTs observed does not appear to reconcile with the number of ASTs included on the SCDHS Petroleum Bulk Storage (PBS) registration. While this was not considered a REC, PWGC recommended an updated PBS registration submitted to SCDHS to properly update the County's records.

Next, though not part of the ASTM E1527-13 scope, PWGC stated that ACM (asbestos containing material) and/or lead-based paint (LBP) may be present due to the ages of the buildings on-site. Proper asbestos/lead surveys should be done prior to building demolition or renovation, and abatement should be done for any identified ACM and/or LBP.

2017 Phase II – Gyrodyne Industrial Area - prepared by PWGC (App. I page I-1040)

The scope of the Phase II followed the Phase I's recommended characterization sampling of the sanitary systems and storm drains on this lot.

Per SCDHS, characterization sampling included primary sanitary structures (e.g., septic tanks and primary cesspools), storm drains remediated in 2011, and additional storm drains identified by field screening. This included seventeen sanitary structure samples and four drywell samples collected per SCDHS. Other structures were paved over or had large concrete covers that prevented access (noting the inaccessible Building 1 structure was not impacted during the 2011 remediation event).

The four existing on-site buildings are serviced by nine separate sanitary systems:

Table 4-2: Lot 1 Sanitary Systems

Building	No. of sanitary systems	Sanitary System Components
1	Two	2 primary cesspools, 1 solid bottom septic tank, 5 secondary cesspools
2	One	1 septic tank, 1 primary cesspool, 1 secondary cesspool

[20] See Appendix I Phase I ESA's Appendix F for emails to and from Suffolk County Department of Health Services.

7	Five	3 septic tanks, 2 solid bottom septic tanks, 7 primary cesspools, 2 distribution boxes, 4 secondary cesspools, and 3 tertiary cesspools
8	One	1 septic tank, 1 solid bottom structure, and 1 primary cesspool

Drywell soil samples were field screened per two SCDHS criteria[21] based on elevated photo ionization detector (PID) readings and/or visual or olfactory evidence of impact. The laboratory analysis tested for VOCs (Volatile Organic Compounds), SVOCs (Semi-Volatile Organic Compounds), and Metals. Results were compared to the SCDHS Action Levels in SCDHS Article 12-SOP 9-95: Pumpout and Soil Cleanup Criteria (August 2010).

Sanitary Structure results: VOCs were detected at concentrations exceeding their respective SCDHS Action Levels in a total of 13 of 17 sanitary structures: primarily toluene, with additional petroleum compounds detected in many structures. There were no chlorinated VOCs (CVOCs) detected (e.g. tetrachloroethene (PCE) or trichloroethene (TCE)). One structure had an SVOC concentration exceeding the respective SCDHS Action Level. Four structures had metals (mercury, chromium, and silver) detected at concentrations exceeding their respective SCDHS Action Levels.

Drywell results: SVOCs were detected at concentrations exceeding their respective SCDHS Action Levels in 2 of 4 samples; the identified compounds are associated with typical parking lot runoff. VOCs and metals were not detected at action-level concentrations.

Recommendations: The fifteen structures with identified concentrations above SCDHS levels require remediation, in accordance with SCDHS SOP 9-95. This should include:

- Submission of the Phase II ESA to SCDHS review.
- SCDHS will issue a letter detailing their remedial requirements for the site. The Department may have additional requirements such as characterization sampling of additional cesspools and/or additional parking lot storm drains.
- Removal of impacted sediment from each impacted structure until clean endpoint samples can be obtained, after removing any liquids present.
- Once structures are remediated and acceptable endpoint samples are obtained, submit a Remediation Report to SCDHS for review; once SCDHS requirements are met, the Department will issue a No Further Action letter for the site.

2017 Phase II – Gyrodyne Catering Facility - prepared by PWGC (App. I page I-848)

The scope of the Phase II followed the Phase I recommendations: a geophysical survey to identify USTs (in-place or removed); collection and analysis of soil samples from UST locations to confirm no-occurrence of a petroleum release; soil borings near the House B UST to identify potential petroleum release; and characterization sampling of the catering facility's main building sanitary systems.

Geophysical survey: The geophysical survey comprised the exterior areas around the main building and three of the four accessory structures (a fourth structure's exterior area was inaccessible). Metal detector and ground penetrating radar (GPR) were used.

[21] The two SCDHS criteria for screening comprised structures with impact present during the 2011 remediation event (two drywells), or where evidence of impact was identified based on field screening (one drywell had elevated PID and petroleum sheen, one drywell had petroleum odor).

- The House B UST was marked out for soil borings to be installed safely around it.
- Two Main Building sanitary systems were connected to both kitchens.
- Two structures near one of the kitchens are connected directly from the building and to the vented cover in the grassy area. These structures do not appear to connect to other structures in the area. No septic tank or other pretreatment structure appears to be associated with these pools.
- GPR identified disturbed subsurface soils near the main building, indicating a potential former excavation area and a potential former UST. No anomalies were present.
- A buried drywell, connected to a storm water drain, was located on the east side of the main building.
- No metallic anomalies or potential USTs were identified in the surveyed areas.

Soil borings and Laboratory analysis: PWGC installed three borings in critical areas: two near House B's UST and one near the potential former excavation area near the main building. Soils were collected down to twenty-five feet below grade; no groundwater was encountered. Soils were field-screened with a PID for VOCs commonly associated with petroleum products. Recovered soils consisted primarily of light brown medium-grained silty sand with gravel and some clay. Elevated PID responses (above background) were not observed, and neither were visual or olfactory evidence of impact. Based on the lack of evidence of impact, a sample was taken from the deepest two-foot section of each boring (23-25 feet below grade) for laboratory analysis. The utilized laboratory is certified by the NYS Department of Health (NYSDOH) Environmental Laboratory Accreditation Program. Soil samples were analyzed for NYSDEC CP-51 List VOCs and SVOCs, specifically targeting compounds associated with petroleum (e.g., fuel oil) impact.

Sanitary system characterization: The main building has one on-site sanitary system connected to both kitchens. Six primary samples from kitchen grease traps, primary cesspools, and a primary septic tank, and two secondary samples were submitted for laboratory analysis. The samples were analyzed in accordance with SCDHS SOP 9-95 for VOCs, SVOCs, and metals.

Sanitary analysis results: Soil samples were compared to the Unrestricted Use SCOs (Soil Cleanup Objectives) in 6 NYCRR Part 375-6, Remedial Program Soil Cleanup Objectives (December 2006) and NYSDEC Commissioner's Policy (CP) 51, Soil Cleanup Guidance (October 2010). Three soil samples were analyzed for petroleum impact. VOCS and SVOCs were not detected at concentrations exceeding the SCOs.

Sanitary system samples were compared to the SCDHS Action Levels in SCDHS Article 12 - SOP 9-95, Pumpout and Soil Cleanup Criteria (August 2010). No higher-than-allowable SVOC concentrations were identified. One or more VOCs (toluene and 2-butanone, solvents found in commercial grade cleaners/degreasers) were detected at concentrations exceeding their SCDHS Action Levels in seven structures. Metals (silver and chromium) were detected at concentrations exceeding their SCDHS Action Levels in samples collected from two cesspools.

Recommendations: There were no metallic anomalies consistent with USTs identified in the potential UST area near House B, nor were there any identified petroleum impacts in soils near House B's UST or potential former excavation area. The Phase II recommends remediating the on-site sanitary system for the main building in accordance with SCDHS SOP 9-95:

- Submit a copy of the Phase II ESA to SCDHS for review; SCDHS will issue a letter detailing their remedial requirements that would need to be followed (could include characterization sampling of overflow cesspools and/or parking lot storm drains).
- Remove impacted sediment from each impacted structure until clean endpoint samples can be obtained, after removing any liquids present.
- Submit a Remediation Report to SCDHS for review. Once their requirements are met, SCDHS will issue a No Further Action letter.
- It does not appear that the House B heating oil UST has impacted the site, so it appears that no further action is necessary regarding the USTs at the site.
- The area surrounding House C was inaccessible during the geophysical survey. During potential future redevelopment of the site, USTs discovered in this area should be properly managed in accordance with SCDHS and NYSDEC regulations.

2018 Remediation Report – Gyrodyne Industrial Area prepared by PWGC (Appendix I page I-1401)

Remediation Activities

PWGC implemented a remediation program for UIC structures at the property located at 1 Flowerfield (Industrial Area), St. James, New York. The scope of work was based upon PWGC's Phase II ESA (See Appendix I page I-1040) for the site and the requirements of SCDHS for the subject site, and consisted of:

- Remediation of on-site sanitary structures 7ST, 9ST, 9ST1, 9SLPC, 9PLP, 10ST, 12ST, 12PLP, 12PLP1 (MH-1), 13ST, 13PLP, 11ST, 11SLP, AND 14ST.
- Remediation of storm drains SD13 and SD17.
- Permanent disconnection of interior sink effluent sources from storm drains SD10, SD15 and SD18.

The scope of work for remediation consisted of the removal of liquids and sediment from seven septic tanks, six cesspools, and two storm drains containing impact exceeding SCDHS Action Levels. Remedial activities were performed by Clearbrook of Deer Park, New York under the oversight of PWGC personnel. An estimated total of 95.43 tons of non-hazardous soils were generated during remediation. Non-hazardous soils were disposed of at Clearbrook of Deer Park New York. An estimated total of 23,000 gallons of non-hazardous liquids were generated during remediation. Liquids were disposed of at Clear Flo Technologies, Inc. of North Lindenhurst, New York.

In addition, as directed by SCDHS, sinks within Building 2 and Building 8 discharging to exterior storm drains in violation of the Suffolk County Sanitary Code, have been permanently disconnected.

Endpoint Sample Data

Confirmatory endpoint soil samples were collected from the base of structures 9PLP, 9SLPC, 12PLP1 (MH-1), 12PLP, 13ST, 13PLP, 11SLP, SD13, AND SD17 to document the effectiveness of the cleanout. As septic tank 7ST, 9ST, 10ST, 12ST, 11ST, and 14ST are solid bottom (non-leaching) structures, no endpoint sample was necessary. Endpoint sample analysis was targeted based upon which compounds exceeded SCDHS Action Levels in each structure. Contaminant concentrations in the endpoint soil samples collected from these structures were below SCDHS Cleanup Objectives.

Based on endpoint sample results, it appears that the remedial effort was successful, and PWGC recommends that a No Further Action letter be issued for the site.

2018 Remediation Report – Gyrodyne Catering Facility prepared by PWGC (Appendix I page I-1303)

Remediation Activities

PWGC implemented a remediation program for UIC structures at the property located at 1 Flowerfield (Catering Facility), St. James, New York. The scope of work was based upon PWGC's Phase II ESA (See Appendix I page I-848) for the site and the requirements of SCDHS for the subject site, and consisted of:

- Remediation of on-site sanitary structures GT001, GT002, ST001, ST002, ST003, CP001, CP002, CP003, CP004, CP010, and CP011.

Remediation included the removal of liquids and sediment from two grease traps, five septic tanks, and two cesspools containing impact exceeding SCDHS Action Levels. Remedial activities were performed by Clearbrook of Deer Park, New York under the oversight of PWGC personnel. An estimated total of 37.1 tons of non-hazardous soils were generated during remediation. Non-hazardous soils were disposed of at Clearbrook of Deer Park New York. An estimated total of 30,000 gallons of non-hazardous liquids were generated during remediation. Liquids were disposed of at Clear Flo Technologies, Inc. of North Lindenhurst, New York.

Endpoint Sample Data

Confirmatory endpoint soil samples were collected from the base of structures CP010, CP011, and CP003 (aka ST004) to document the effectiveness of the cleanout. As structures GT001, GT002, ST001, ST002, ST003, and CP001 are solid bottom (non-leaching) structures, no endpoint sample was necessary. Endpoint sample analysis was targeted based upon which compounds exceeded SCDHS Action Levels in each structure. Contaminant concentrations in the endpoint soil samples collected from these structures were below SCDHS Cleanup Objectives.

Based on endpoint sample results, it appears that the remedial effort was successful, and PWGC recommends that a No Further Action letter be issued for the site.

4.2. Potential Impacts of Proposed Subdivision

The proposed Map of Flowerfield Preliminary Subdivision would result in approximately a cut quantity of 37,897 cubic yards and a fill quantity 773 cubic yards, for a net total cut of 37,124 cubic yards (see Appendix M Sheet M-2). Additional information regarding the quantity and potential impacts of soil export is provided in Sections 2.13 and 9.2.

All developed portions of the site will first be subject to grading operations (to provide an acceptable surface on which development can take place), followed by installation of landscaping (to provide a means of stabilizing the soil to prevent erosion as soon as practicable following grading). Construction operations are not anticipated to result in significant adverse impacts to soils, and the presence of soils with limitations on development is not anticipated to impede the intended uses of the site.

4.3. Proposed Mitigation

Development associated with the proposed subdivision (internal site roads, STP) would exceed one-acre in size, and would therefore require a Storm Water Pollution Prevention Plan (SWPPP) as part of the Town approval process. The SWPPP will include Erosion and Sediment Control plans that will specify the types, locations, and maintenance of any erosion control measures. Additionally, the SWPPP will require ongoing, Town-supervised SWPPP inspections for the duration of all construction activity. This will ensure that the erosion controls noted on the engineering documents will be carried out as planned.

Careful attention would be paid to soil conservation and erosion control techniques during grading activities. Final site design would also incorporate methods to control erosion and sedimentation and limit transport of sediment to offsite areas. Guidance would be taken from the Best Management Practices (BMPs) recommended in the latest New York Guidelines for Urban Erosion and Sediment Control[22] as well as the NYSDEC's Urban Stormwater Runoff Management Practices Catalogue.[23]

An extensive erosion control plan would reduce runoff during construction. A controlled sequence of measures would ensure that runoff and sediment receiving areas are prepared in advance of major site disturbances. An erosion-control seed mixture would be used containing 50% annual ryegrass and 50% perennial ryegrass for quick and effective stabilization of the soils. A series of hay bales and silt fences would be placed to capture coarse and fine sediment.

Silt fences would also be installed to prevent material from washing away. Earth stockpiled for longer than fifteen (15) days would be stabilized by either seeding it with the erosion control seed mixture referred to above or mulching it with hay.

Maintenance of the erosion control measures would include removal of accumulated sediment and trash from all control structures and the basin, repair or replacement of damaged swales, diversions, silt fencing, hay bales, and reseeding where necessary. The construction entrance would be stabilized with crushed stone to prevent soil and debris from being carried onto roads. Construction-related erosion control measures would be removed during final landscaping.

[22] *New York Guidelines for Urban Erosion and Sediment Control*, USDA, Natural Resources Conservation Service, Printed by the Empire State Chapter, Soil and Water Conservation Society, Fourth Printing, April 1997
[23] *Urban Stormwater Runoff Management Practices Catalogue for Nonpoint Source Pollution Prevention and Water Quality Protection in New York State*. NYS Department of Environmental Conservation, 1996.

5. Topography

5.1. Existing Conditions

A Topographic Survey was conducted to identify areas of steep slopes and other natural areas to be preserved. Elevations on the site range from a low of ±118 feet above mean sea level at the far northeast corner of the property to a high of ±172 feet above mean sea level in the southeasterly portion of the property.

The property has undulating topography throughout, with individual berms at or above 160 feet elevation, and lower depressions generally below 148 feet elevation (particularly around the existing on-site ponds).

Along NYS Route 25A, the site generally slopes up as one travels east from Mills Pond Road, up to approximately ¾ of the way along the frontage. Near the northwest corner (at Mills Pond Road) the elevation is approximately 138 feet, which increases up to 154 feet at the ¾ point, then decreases to ±118 feet at the far northeast corner.

Along Mills Pond Road, the slopes are fairly gentle, with increasing elevation as one travels south from Route 25A. Closer to Route 25A, if one looks due east towards Gyrodyne from Mills Pond Road, grades are fairly level. Further south, if one looks due east into the property from Mills Pond Road (towards the industrial buildings), slopes are generally steeper and increasing from west to east.

As one moves south from Route 25A, the property generally slopes up as well. The general elevation gets higher as one goes south towards the LIRR tracks.

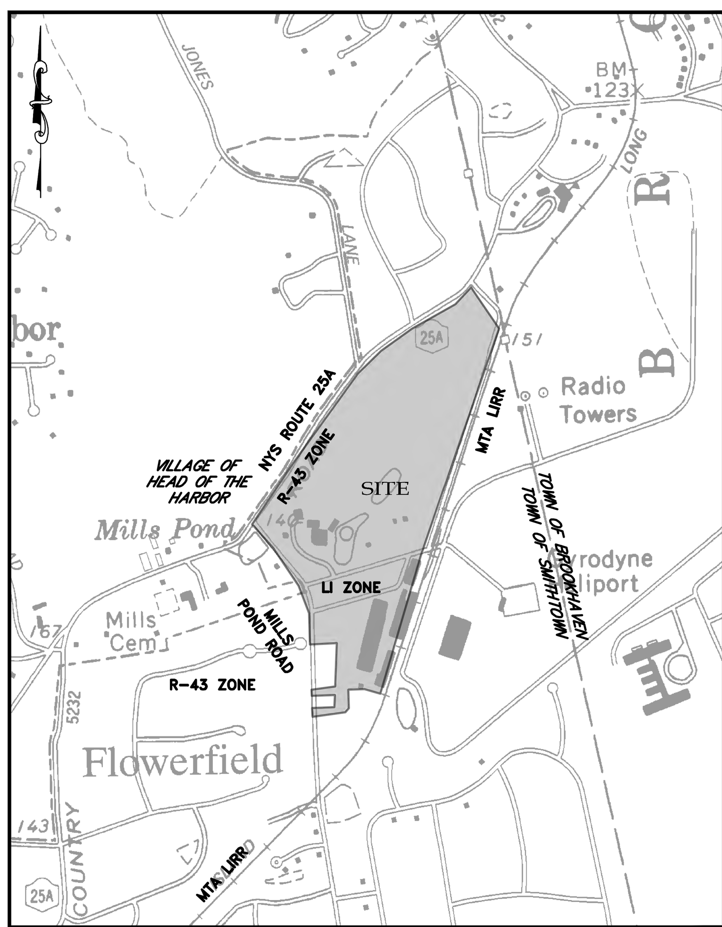
The majority of the site is between 140 and 160 feet, and as shown in the slope analysis provided in Table 5-1, most of the property (nearly 93%) has a slope below ten percent. Steep slopes over 25% comprise less than three percent of the site, and are generally located in the northeast corner near the easterly (often gated) curb cut.

Table 5-1: Slope Analysis

Slope Category	Area (SF)	Percent of Site
10 – 15%	±96,895	3.0%
15 – 25%	±90,097	1.8%
>25%	±85,893	2.6%

Figure 5-1 on the next page presents the existing two-foot contour lines (closer line spacing indicates steeper slopes). Figure 5-2 follows with a visual slope analysis.

Existing Topography Contours
Figure No. 5-1



KEY LOCATION MAP
(SCALE 1"=600'±)

SLOPES TABLE					
NUMBER	MINIMUM SLOPE	MAXIMUM SLOPE	AREA (SF)	COLOR	PERCENTAGE OF SITE
1	10.00%	15.00%	±96,895		3.0%
2	15.00%	25.00%	±90,097		1.8%
3	25.00%	+25.00%	±85,893		2.6%

Slope Analysis

Figure No. 5-2

5.2. Potential Impacts of Proposed Subdivision

The existing topography would be graded and shaped to create the building areas, landscaped areas, interior roads and sidewalks, and drainage features (basins and roadside drainage swales). The planned subdivision would be laid out to work with the existing topography as much as practical, such as placing new buildings on the flatter portions of the property, and maintaining the steeper areas.

A majority of the property would be subjected to cut and fill earthwork, and the goal will be to balance cut and fill to minimize the removal of material off the property. With this in mind, most of the excavation will be associated with grading activities to accommodate new buildings, parking lots, and site improvements (e.g. landscaping and utilities). The larger excavation components include the drainage reserve areas (DRAs) that will provide natural, passive stormwater storage and leaching, plus the excavation required to build the new subdivision roads on top of "cut" areas so the underlying base material can structurally support new pavement and vehicular traffic.

The Preliminary Engineering Plans (Appendix M) indicate the planned changes to the existing topography. The Proposed Action would result in approximately a cut quantity of 37,897 cubic yards and a fill quantity 773 cubic yards, for a net total cut of 37,124 cubic yards (see Appendix M, Sheet M-2)

5.3. Proposed Mitigation

The proposed Grading and Drainage Plans on Sheets C-2 through C-4 (see (see pages M-3 through M-5 in Appendix M) prepared as part of the Subdivision application provide additional details of overall site grading, and will require Town Planning Division and Engineering Division reviews and Town Board approval. Additionally, Grading and Drainage Plans will be required on individual lots as each lot is developed, subject to the same extent of municipal review and approval. Typical thresholds will be maintained, such as grading slopes at 1:3 or less.

The clearing and grading process for the proposed subdivision is expected to take approximately 8-12 months. With the property being nearly 75 acres, and with the planned extensive setbacks from Route 25A, nearly all grading activity can be fully contained within the property. There will be some grading activity associated with the proposed Route 25A driveway, though this is in a flatter area of the property.

Additionally, erosion control measures would be taken to protect the site during construction. The subdivision will be subject to a Stormwater Pollution Prevention Plan (SWPPP) to control erosion and minimize the transfer of site debris onto local roads. Erosion and Sediment Control elements are expected to include silt fences, a gravel or crushed-stone stabilized construction entrance/exit with a wash-down area, and storm drain inlet protection. Vegetative measures are expected to include mulching, topsoil-and-seeding, and/or topsoil-and-sod to prevent erosion. Additionally, for one or more lots at a time (depending how the property is eventually developed) a specific construction sequence would be established to minimize erosion potential. The final grade surface, once established, would be stable, non-erosive, and fully vegetated where appropriate.

6. Vegetation and Wildlife

Numerous ecological surveys have been conducted on different portions of the 74.98-acre Flowerfield site. The ecological conditions, apart from Lot 2 (the Flowerfield Celebrations catering hall lot), were thoroughly assessed by Dr. Orland J. Blanchard, Jr. and Thomas W. Cramer, ASLA in 2006 and 2008, respectively, as described in the 2008 proposed Draft Environmental Impact Statement (DEIS) prepared for the Gyrodyne Redevelopment (Cameron Engineering, 2008). This area of the Flowerfield site was revisited in May 2017 by Dr. William P. Bowman to verify and update the ecological findings of the 2008 report, and to add Lot 2 (the Flowerfield catering parcel) to the ecological conditions assessment.

The complete Ecology Chapter of the 2008 proposed DEIS report is provided in Appendix E: Ecology Analysis.

Plant and wildlife lists for the Flowerfield property were prepared based on the 2008 proposed DEIS and on the additional species observed during the 2017 survey. A total of 196 vascular plant species were observed or expected at the site, including 92 woody plants, 102 herbaceous plants, and two ferns (see Table 6-2 on page 6-14). Additionally, the following animals were observed or expected at the site: 80 birds, 19 mammals, nine herpetiles, 25 butterflies, and two dragonflies (see Table 6-3 starting on page 6-21 and see Table 6-4 starting on page 6-23).

6.1. Ecological Communities

The existing ecological communities are the result of multiple periods of land uses and variable patterns of redevelopment and maintenance throughout the 20th century. As early as 1930, this site was entirely cleared and consisted of agricultural fields as shown on aerial imagery from Suffolk County[24].

Aerial imagery from 1947 similarly shows agricultural fields, various residential and agricultural buildings, and a Long Island Rail Road (LIRR) station present on the property. The 1950s through the 1970s brought intensification of light industry and commercial uses, construction of the catering facility, and enlargement of a small farm pond to create the two larger man-made ponds observed today. The existing ecological communities at the site include mowed fields; commercial and light industrial buildings and associated parking areas and roads; rows of large planted trees; landscaped areas, plantings, and turf grass; man-made ponds, and early successional habitats (such as successional old fields, overgrown hedgerows, and successional southern hardwoods) in areas that are no longer or infrequently maintained.

The ecological communities present at the subject property were described and quantified in the 2008 proposed DEIS (Cameron Engineering, 2008). The boundaries of the ecological communities were re-mapped based on 2017 conditions (see Figure 6-1 on page

[24] Accessed via www.suffolkcountyny.gov/Portals/0/planning/Cartography/1930/sc19304f2WEB.pdf

6-3). However, the location and extent of these ecological community types has not changed significantly since 2006 or 2008. The minor changes in the distribution and abundance of the various ecological community types has apparently resulted from changes in the maintenance (i.e. mowing) frequency in portions of the property leading to the conversion of some mowed lawn areas to successional old fields or successional southern hardwood forests. Eight ecological community types were observed including:

1) Mowed Lawn
2) Mowed Lawn with Trees
3) Successional Old Field
4) Overgrown Hedgerows
5) Successional Southern Hardwoods
6) Farm Pond/Artificial Pond
7) Hard Surfaces
8) Orchard

The descriptions of these ecological community types (provided in the 2008 proposed DEIS) have been maintained, and they are presented below (with minor modifications) along with the community descriptions provided by the New York Natural Heritage Program in Edinger et al (2002). Updated calculations of the acreage of each ecological community type and the percentage of the total site area are provided in Table 6-1 on page 6-4. Five of these ecological communities (mowed lawn, mowed lawn with trees, orchard, farm pond/artificial pond, and hard surfaces), accounting for 74.32% of the site, are classified as “cultural” ecological communities by the New York Natural Heritage Program and defined in Edinger et al (2002). These communities are created and maintained by human activities, or they are modified by human influence to such a degree that the physical conformation of the substrate, or the biological composition of the resident community, is substantially different from the character of the substrate or community as it existed prior to human influence.

Hard Surfaces include buildings, parking lots, roads, and walkways around the commercial/light industrial development. No portion of the site is considered wholly natural and undisturbed; even the vegetated portions reflect direct impacts from human activities. Table 6-1 on page 6-4 provides a breakdown of the quantities and percentages for each of the various habitats. Figure 6-1 on the next page illustrates the approximate locations of the habitats. The locations and areas are based on field inspections and aerial photograph interpretation.

NOTES:
1. Ecological Communiy Boundaries based on field inspections performed by Land Use Ecological Services, Inc.in May 2017, and based on 2016 orthoimages from NYS GIS Clearinghouse.
2. Ecological Community Category Classifications from Proposed Draft Environmental Impact Statement for Gyrodyne Redevelopment Application (Cameron Engineering, 2008).

Hard Surface (18.9 acres)
Mowed Lawn w/Trees (14.1 acres)
Mowed Lawn (20.0 acres)
Successional Southern Hardwoods (8.7 acres)
Successional Old Field (4.5 acres)
Overgrown Hedgerow (6.5 acres)
Orchard (0.8 acres)
Artificial Pond (2.0 acres)

N
1 in = 250 ft
0 75 150 300 Feet

Land Use

Prepared By: Land Use Ecological Services, Inc.
570 Expressway Drive South, Suite 2F
Medford, NY 11763

Project: Gyrodyne and Flowerfield Properties - Ecological Communities
For: Cameron Engineering
At: Mills Pond Road, St. James, NY
SCTM #800-40-2-4,13.3,13.4,14,15,16

Date: 5/30/2017	Revised:	Scale: As Noted	Sheet: Figure 1

Table 6-1: Ecological Communities

Ecological Community Type	Acres	Percent
Hard Surfaces (Parking Areas, Roads, and	18.87	25.17%
Mowed Lawn with Trees	14.03	18.71%
Mowed Lawn	19.97	26.63%
Successional Southern Hardwoods	8.29	11.06%
Successional Old Field	4.51	6.01%
Overgrown Hedgerows	6.45	8.60%
Orchard	0.84	1.12%
Artificial Pond	2.02	2.69%
Totals	74.98	100%

<u>Mowed Lawn</u>

An ecological community that is currently being maintained by human activity on-site is classified as the "Mowed Lawn." This habitat is the largest habitat on the site and occupies approximately 19.97 acres or 26.63% of the property. The following is the definition of this community as described by Edinger et al (2002):

> **"Mowed lawn:** residential, recreational, or commercial land, or unpaved airport runways in which the groundcover is dominated by clipped grasses and there is less than 30% cover of trees. Ornamental and/or native shrubs may be present, usually with less than 50% cover. The groundcover is maintained by mowing. "Characteristic birds include American robin (*Turdus migratorius*), upland sandpiper (*Bartramia longicauda*), and killdeer (*Charadrius vociferus*)."

The above quote from Edinger et al (2002) indicates that the upland sandpiper (*Bartramia longicauda*) is a characteristic species of mowed lawn communities; however, the probability that this species will occur at this particular location is low. Specifically, upland sandpiper prefer areas with high acreage of agricultural crops or prairie grasslands; in New York State this species favors habitat with field sizes greater than 30 hectares, or approximately 74 acres (NYNHP 2019). As the site does not contain the preferred large agricultural or native grassland habitat of this species, it is unlikely that upland sandpiper will occur at the project site. Accordingly, the upland sandpiper has been omitted from Table 6-3.

This main ecological community type is to be found in the northern half of the site in hedgerow-bordered fields, but smaller examples are present east and north of the main commercial/industrial buildings and around the edges of these buildings themselves and the edges of their parking lots.

The lawns are, by definition, regularly mowed and so the grasses themselves are not easily identified but occasional weedy non-grass herbaceous species can be discerned, including Red Clover (*Trifolium pratense*), English Plantain (*Plantago lanceolata*), Sheep Sorrel (*Rumex acetosella*), Mouse-ear Chickweed (*Cerastium vulgatum*), Common Chickweed

(*Stellaria media*), Dandelion (*Taraxacum officinale*), Field Garlic (*Allium vineale*), Wintercress (*Barbarea vulgaris*), Gill-Over-the-Ground (*Glechoma hederacea*), Cat's Ear (*Hypochoeris radicata*), and Evening Primrose (*Oenothera* sp.).

Where mowers do not regularly reach, such as areas close to the hedgerows, additional species escape the blade enough to be recognizable. These include some woody perennials. Examples of herbs are Garlic Mustard (*Alliaria petiolata*), Mugwort (*Artemisia vulgaris*), Avens (*Geum* sp.), Asters (*Aster* spp.), Goldenrods (*Solidago* spp.), Wild lettuce (*Lactuca canadensis*), Heal-all (*Prunella vulgaris*), Moth Mullein (*Verbascum blattaria*) and Common St. John's Wort (*Hypericum perforatum*). Woody species include Japanese Honeysuckle (*Lonicera japonica*), Multiflora Rose (*Rosa multiflora*), Wineberry (*Rubus phoenicolasius*) and Privet (*Ligustrum* sp.).

<u>Mowed Lawn With Trees</u>
This ecological community borders the industrial buildings and parking lots and is found in linear plantings within the mowed lawns. This cover type occupies approximately 14.03 acres or 18.71% of the property. The following is the definition of this community as described by Edinger et al (2002):

> "Mowed lawn with trees: residential, recreational, or commercial land in which the groundcover is dominated by clipped grasses and forbs, and it is shaded by at least 30% cover of trees. Ornamental and/or native shrubs may be present, usually with less than 50% cover. The groundcover is maintained by mowing. "Characteristic animals include gray squirrel (*Sciurus carolinensis*), American robin (*Turdus migratorius*), mourning dove (*Zenaida macroura*), and mockingbird (*Mimus polyglottos*).

The tree species found within this community include Oaks (*Quercus spp.),* Black Locust (*Robinia pseudoacacia*), Cherries (*Prunus spp.*) and Hickories (*Carya spp*.), as well as Apples (*Malus spp*.). For the most part, this community is found in linear plantings within the Mowed Lawn communities and in larger blocks adjacent to the industrial and catering uses. There are also some small areas of this community within the industrial area.

As with the Mowed Lawn described above, these areas are regularly mowed, and so the grasses themselves are not easily identified, but occasional weedy non-grass herbaceous species can be discerned, including Red Clover (*Trifolium pratense*), English Plantain (*Plantago lanceolata*), Sheep Sorrel (*Rumex acetosella*), Mouse-ear Chickweed (*Cerastium vulgatum*), Common Chickweed (*Stellaria media*), Dandelion (*Taraxacum officinale*), Field Garlic (*Allium vineale*), Wintercress (*Barbarea vulgaris*), Gill-Over-the-Ground (*Glechoma hederacea*), Cat's Ear (*Hypochoeris radicata*), and Evening Primrose (*Oenothera* sp.).

Figure 6-2 on page 6-6 presents four representative photographs of Mowed Lawn and Mowed Lawns with Trees on the site.

Figure 6-2: Representative Photographs of Mowed Lawn and Mowed Lawns with Trees

Orchard

A small (0.84-acre) area adjacent to the Flowerfield catering facility contains an old orchard with a ground cover of turf grass that is presently being mowed. The following is the definition of this community as described by Edinger et al (2002):

> "**Orchard:** a stand of cultivated fruit trees (such as apples, cherries, peaches, pears, etc.), often with grasses as a groundcover. An orchard may be currently under cultivation or recently abandoned. Staghorn sumac (*Rhus typhina*), goldenrods (*Solidago* spp.), and poison ivy (*Toxicodendron radicans*) may be common in abandoned orchards. "Characteristic birds include American robin (*Turdus migratorius*), eastern kingbird (*Tyrannus tyrannus*), mourning dove (*Zenaida macroura*), and in mature orchards with a minimum dbh [diameter at breast height] of 10 inches… yellow-bellied sapsucker (*Sphyrapicus varius*)."

Overgrown Hedgerows

Many of the mowed lawn areas (and the eastern man-made pond) are bordered by narrow, planted single-species hedgerows comprised largely of evergreen species such as Douglas

Fir (*Pseudotsuga menziesii*), Hemlock (*Tsuga canadensis*), Norway Spruce (*Picea abies*), Red Cedar (*Juniperus virginiana*) and Arborvitae (*Thuja occidentalis*). There are also Privets (*Ligustrum spp*.) forming tall hedges in the similar linear configurations. Many of these linear plantings have growing within them other woody species including Japanese Honeysuckle (*Lonicera japonica*), Multiflora Rose (*Rosa multiflora*), Wineberry (*Rubus phoenicolasius*), Asiatic Bittersweet *(Celastrus orbiculata)* and Wild Grape (*Vitis spp.*). As noted above, some of these hedgerows are "monoculture", or contain a single ornamental plant species, while others contain numerous invasive woody species that have colonized into the single-species plantings.

Edinger et al (2002) does not provide a description of an ecological community that would closely match these habitats. Figure 6-3 presents representative photographs of this community as found on-site.

Figure 6-3: Representative Photographs of Overgrown Hedgerows

<u>Successional Old Field</u>

Successional old fields represent 4.51 acres, or 6.01% of the subject property. The following is the definition of this community as described by Edinger et al (2002):

> "**Successional old field:** a meadow dominated by forbs and grasses that occurs on sites that have been cleared and plowed (for farming or development), and then abandoned." Characteristic herbs include goldenrods (*Solidago altissima*, *S. nemoralis*, *S. rugosa*, *S. juncea*, *S. canadensis*, and *Euthamia graminifolia*), bluegrasses (*Poa pratensis, P. compressa*), timothy (*Phleum pratense*), Quack Grass (*Elyttigia repens*), smooth brome (*Bromus inermis*), sweet vernal grass (*Anthoxanthum odoratum*), orchard grass (*Dactylis glomerata*), common chickweed (*Cerastium arvense*), common evening primrose (*Oenothera biennis*), oldfield cinquefoil (*Potentilla simplex*), calico aster (*Aster lateriflorus*), New England aster (*Aster novae-angliae*), wild strawberry (*Fragaria virginiana*), Queen-Anne's lace (*Daucus corota*), ragweed (*Ambrosia artemisiifolia*), hawkweeds (*Hieracium* spp.),

> dandelion (*Taraxacum officinale*), and ox-tongue (*Picris hieracioides*). Shrubs may be present, but collectively they have less than 50% cover in the community. "Characteristic shrubs include gray dogwood (*Cornus foemina* ssp. *racemosa*), silky dogwood (*Cornus amomum*), arrowwood (*Viburnum recognitum*), raspberries (*Rubus* spp.), sumac (*Rhus typhina, R. glabra*), and eastern red cedar (*Juniperus virginiana*). A characteristic bird is the field sparrow (*Spizella pusilla*). This is a relatively short-lived community that succeeds to a shrubland, woodland, or forest community."

Edinger et al (2002) indicate that this ecological community is distributed throughout New York State with a rarity ranking of G4 and S4 indicating that these communities are considered "apparently secure" both globally and in New York State.

The largest area of successional old field found on the site is in the north-central portion of the site. As noted in the Edinger et al (2002) definition, this community typically results from the recent abandonment of cleared areas. This particular area was cleared and then apparently established in nursery stock or lawn. These two prior uses have resulted in vegetation types that differ somewhat, but are both in fairly early stages of development. The old nursery areas contain numerous ornamental species, such as Yews (*Taxus spp*.), Colorado Blue Spruce (*Picea pungens*), Rose-of-Sharon (*Hibiscus syriacus*), Flowering Quince (*Chaenomeles* sp.), Spiraea (*Spiraea spp*.), Rhododendron (*Rhododendron spp*.), Viburnum (*Viburnum spp*.), Crabapple (*Malus spp*.) and Forsythia (*Forsythia spp*.). After abandonment, the characteristic herbs and shrubs have colonized in between them. The eastern part was, fairly recently, a portion of the community described above as Mowed Lawn.

Both of these areas are in an early enough stage that resumption of mowing would readily return them to their former condition. Cessation of mowing has released some lawn weeds to flourish, and other opportunistic species, both herbaceous and woody, have also moved in. In most parts of these fields, Yellow Foxtail (*Setaria pumila*) is conspicuously dominant and was visible during one of the seasons of the visit; other graminoids (grasses and grass-like plants) include Broomsedge (*Andropogon virginicus*), Orchard Grass (*Dactylis glomerata*) and Purple-Top (*Tridens flavus*). Among the forbs (broad-leafed herbaceous species) species are Cat's Ear, Red Clover, Chicory (*Cichorium intybus*), Curled Dock (*Rumex crispus*), Burdock (*Arctium minus*), Black-eyed Susan (*Rudbeckia hirta*), Knapweed (*Centaurea* sp.), and Horseweed (*Conyza canadensis*). Invading woody species, mostly as young plants, include Black Locust (*Robinia pseudoacacia*), Purple Nightshade (*Solanum dulcamara*), Multiflora Rose, and Autumn Olive (*Elaeagnus umbellata*).

Figure 6-4: Representative Photograph of Successional Old Field

A more complete list of vegetation found on site for this community includes such forbs as Goldenrod (*Solidago, spp*), Aster (*Aster spp.*), Mugwort, Common Ragweed (*Ambrosia artemisiifolia*), Broad Dock (*Rumex obtusifolius*), Cat's Ear, Common Fleabane (*Erigeron* sp.), Pale Knotweeed (*Polygonum lapathifolium*), Red Clover, Queen-Anne's Lace (*Daucus carota*), Common Milkweed (*Asclepias syriaca*), White Campion (*Silene latifolia*), and Deptford Pink (*Dianthus armeria*). Graminoids are Timothy Grass (*Phleum pratense*), Orchard Grass, Purple-Top, Crab Grass (*Digitaria* sp.), Quack Grass (*Elyttigia repens*), Path Rush (*Juncus tenuis*), Love Grass (*Eragrostis pectinacea*), Foxtail (*Setaria spp.*), Eulalia (*Miscanthus sinensis*), Deertongue Grass (*Panicum clandestinum*), Broomsedge, and Bent Grass (*Agrostis* sp.).

Shrubs, woody vines and sapling trees are also common and include: Wineberry (*Rubus phoenicolasius*), Blackberry (*R. allegheniensis*), Northern Dewberry (*R. flagellaris*), Black Raspberry (*R. occidentalis*), Flowering Dogwood (*Cornus florida*), Dwarf Sumac (*Rhus copallinum*), Staghorn Sumac (*R. typhina*), Virginia Creeper (*Parthenocissus* sp.), Multiflora Rose, Black Oak (*Quercus velutina*), Pin Oak (*Q. palustris*), White Oak (*Q. alba*), Sweet Cherry (*Prunus avium*), White Mulberry (*Morus alba*), Autumn Olive, Purple Nightshade, and Red Cedar.

<u>Successional Southern Hardwoods</u>

Successional southern hardwoods represent 8.29 acres, or 11.06% of the subject property. The following is the definition of this community as described by Edinger et al (2002):

> "**Successional southern hardwoods:** a hardwood or mixed forest that occurs on sites that have been cleared or otherwise disturbed. "Characteristic trees and shrubs include any of the following: American elm (*Ulmus americana*), slippery elm (*U. rubra*), white ash (*Fraxinus americana*), red maple (*Acer rubrum*), box elder (*Acer negundo*), silver maple (*A. saccharinum*), sassafras (*Sassafras albidum*), gray birch (*Betula populifolia*), hawthorns (*Crataegus* spp.), eastern red cedar (*Juniperus virginiana*),

> and choke-cherry (*Prunus virginiana*). Certain introduced species are commonly found in successional southern hardwoods, including black locust (*Robinia pseudo-acacia*), tree of - heaven (*Ailanthus altissima*), and buckthorn (*Rhamnus cathartica*). Any of these may be dominant or codominant in a successional southern hardwood forest. Southern indicators include American elm, white ash, red maple, box elder, choke-cherry, and sassafras. This is a broadly defined community and several seral and regional variants are known.

Edinger et al (2002) indicate that this ecological community is distributed throughout New York State with a rarity ranking of G5 and S5 indicating that these communities are considered "demonstrably secure" both globally and in New York State.

There are four discrete areas within this community type that exist on site. Each of these exists because of different types of communities from which they started their successional revegetation and the amount of time that they have had to develop. The four areas are found in a narrow strip along NYS Route 25A and the eastern margin of the site at the eastern entrance, a large area in the southern portion of the site bordered to the east and west by mowed lawn, a formerly cleared residential property on Mills Pond Road, and a small area just southeast of the catering facility's parking lot that abuts Mills Pond Road.

This ecological community covers a wide spectrum of successional stages and, hence, it can be only broadly characterized. In most places either Black Locust or Black Cherry tends to dominate, while Tree-of-Heaven (*Ailanthus altissima)*, Sassafras, Black Walnut (*Juglans nigra*), Red Cedar, and Sweet Cherry are also are present, and some one or another of these may locally take on more importance. In older examples, oaks and hickories are often present, whereas in younger examples of this vegetation type, senescent individuals of Red Cedar and Gray Birch (*Betula populifolia*) represent remnants of an even earlier, old-field stage.

This kind of forested land on the site is usually extremely viney, the trees and shrubs being covered with Grape, Greenbrier, Virginia Creeper, Asiatic Bittersweet, Porcelainberry, Japanese Honeysuckle and Poison Ivy. Multiflora Rose, Autumn Olive and Blackberry are common shrubs, while an herbaceous stratum is virtually non-existent.

<u>Farm Pond/Artificial Pond</u>

Two small man-made ponds represent 2.02 acres, or 2.69% of the subject property. These ponds were constructed between 1962 and 1978 by enlarging a smaller farm pond. The following is the definition of this community as described by Edinger et al (2002):

> "**Farm pond/artificial pond:** the aquatic community of a small pond constructed on agricultural or residential property. These ponds are often eutrophic, and may be stocked with panfish such as bluegill (*Lepomis macrochirus*), and yellow perch (*Perca flavescens*). The biota are variable (within limits), reflecting the species that were naturally or artificially seeded, planted, or stocked in the pond."

These ponds are thoroughly described in the following section (6.2, Wetlands) beginning on page 6-13.

Hard Surfaces

These are the developed impervious areas possessing the least amount of vegetation including buildings, parking lots, driveways and roads, as well as some limited areas of landscaping immediately surrounding the buildings. These are mainly in the southern part of the site and occupy 18.9 acres, or 25.0% of the site. The following is the definition of these communities as described by Edinger et al (2002):

> **"Urban structure exterior:** the exterior surfaces of metal, wood, or concrete structures (such as commercial buildings, apartment buildings, houses, bridges) or any structural surface composed of inorganic materials (glass, plastics, etc.) in an urban or densely populated suburban area. These sites may be sparsely vegetated with lichens, mosses, and terrestrial algae; occasionally vascular plants may grow in cracks. Nooks and crannies may provide nesting habitat for birds and insects, and roosting sites for bats. "Characteristic birds include common nighthawk (*Chordeiles minor*) on rooftops, American robin (*Turdus migratorius*) on porches or under shelter, and exotic birds such as rock dove (*Columba livia*) and house sparrow (*Passer domesticus*)."
>
> **"Paved road/path:** a road or pathway that is paved with asphalt, concrete, brick, stone, etc. There may be sparse vegetation rooted in cracks in the paved surface."

Representative photographs of these areas are provided in Figure 6-5 below. The above quote from Edinger et al (2002) for urban structure exteriors indicates that the common nighthawk (*Chordeiles minor*) is a characteristic species of hard surface communities, specifically found on rooftops. However, the project site does not contain the urban gravel rooftops preferred by this species, nor does it contain the other preferred natural habitats of this species, including coastal areas, burned forests, woodland clearings, or grasslands (Cornell University 2017). As the preferred habitat is not present, it is unlikely that this species will be found at the project site. Accordingly, the common nighthawk has been omitted from Table 6-3.

Figure 6-5: Representative Photographs of Hard Surfaces

In addition to the eight ecological communities identified by the surveys referenced above, the Final Scope requested additional analysis regarding potential impacts to Long Island's grassland species. This analysis was prepared by William P. Bowman, PhD of Land Use Ecological Services in July 2018 and is presented below.

The site contains large areas of mowed lawn (20.0 acres), mowed lawn with trees (14.1 acres), and successional old fields (4.5 acres), but does not feature any native grassland habitats. Long Island's native grasslands are dominated by native, warm season grasses such as little bluestem (*Schizachyrium scoparium*) and switch grass (*Panicum virgatum*) with lower abundance of native shrubs and forbs. In contrast, the mowed lawn areas consist of cool season grasses that are routinely clipped or mowed close to the ground surface. Successional old fields, such as those on the site, are found on sites that have been previously cleared for farming or development that are dominated by cool season grasses, such as bluegrasses (*Poa sp.*), sweet vernal grass (*Anthoxanthum odoratum*), orchard grass (*Dactylis glomerata*), and various forbs, particularly goldenrods (*Solidago sp.* and *Euthamia sp.*). Grassland and other early successional habitats have declined greatly throughout New York State and northeastern United States over the past century due to development, fire suppression, and the succession of former agricultural lands into forests. As a result, populations of the bird species that utilize grassland habitats have also declined.

The mowed lawn habitats present at the site do not provide breeding habitat for grassland-specialist bird species due to the absence of tall grass cover, clumps of tall grasses, and grass litter. For example, the Eastern meadowlark (*Sturnella magna*) nests in fairly dense, grassy vegetation with a preferred height of 10 to 20 inches with grass heights less than 1 inch or greater than 30 inches, not suitable for nesting (Hull, 2000). The successional old field habitats at the site (approximately 4.5 acres) are mowed/maintained less frequently and, accordingly, provide better habitat for grassland bird species due to the presence of taller grasses.

Grassland bird species, such as the eastern meadowlark, may utilize the open grassy areas of the site seasonally (as wintering habitat) or transiently (during migration periods), due to their preference for open habitats and the site's proximity to higher quality meadow/grassland habitat located at Avalon Park and Preserve and agricultural habitats at BB & GG Farms on Route 25A. The American kestrel (*Falco sparverius*) nests in tree-cavities and hunts for insects and small animals in various open grassy habitats such as agricultural fields and pastures, airports, power lines, and grassy fields and parks. The open mowed lawns of the site provide foraging habitat for American kestrel along with the higher quality meadow/grassland habitats at Avalon Preserve and agricultural habitats at BB & GG Farms.

6.2. Wetlands

Two wetland areas (2.02 acres total) are present on the subject site consisting of the small man-made ponds. The eastern pond is located north of the school bus parking enclosure on the site, surrounded by a thick hedgerow. There is a headwall located in the southeast corner of the pond and stormwater is being directed into it from at least the bus parking areas to the south. The western pond is located on the Flowerfield catering facility.

These ponds are New York State Department of Environmental Conservation (NYSDEC) regulated freshwater wetlands (ID# SJ-6) and subject to Article 24 (Freshwater Wetlands Act) of the Environmental Conservation Law. Accordingly, all construction, clearing, grading, or ground disturbance within 100 feet of these ponds is regulated by the NYSDEC Bureau of Habitat. The ponds are identified on the US Fish & Wildlife Service National Wetlands Inventory as "POWZ," i.e., a palustrine, open-water, intermittently exposed, permanent” wetland. These wetlands were delineated in November 2016 and February 2017 by William P. Bowman, PhD of Land Use Ecological Services.

These ponds have steeply excavated banks that support little freshwater wetland vegetation. The pond at the Flowerfield catering property largely features mowed turf grass to the pond edge with some areas of landscape planting and some thickets of invasive plants such as multiflora rose (*Rosa multiflora*), porcelainberry (*Ampelopsis brevipendunculata*), and white mulberry (*Morus alba*). Similarly, the steep banks of the eastern wetland support little freshwater vegetation; however, the following hydrophytic species were observed low on the pond banks: Beggar's-Ticks (*Bidens frondosa*), Dwarf St.-Johns Wort (*Hypericum mutilum*), False-Pimpernel (*Lindernia dubia*) and Mild Water-Pepper (*Polygonum hydropiperoides*). The steep banks and adjacent uplands on the pond is bordered by planted rows of Gray Birch and Red Cedars and naturally established plant species such as Black Cherry, Flowering Dogwood, Black Locust, Mimosa (*Albizia julibrissin*), Japanese Black Pine (*Pinus thunbergii*), Sassafras and a species of Willow (*Salix* sp.). Several shrubby species were found as well including Multiflora Rose, Bayberry (*Morella pensylvanica*), Pussy Willow (*Salix discolor*), Autumn Olive and Wineberry. Vines, including Japanese Honeysuckle and Wild Grape, are abundant along with weedy herbaceous plants such as Broad Dock, Queen Anne's Lace, St. John's Wort, Moth Mullein, Orchard Grass, Pokeweed (*Phytolacca americana*), Field Garlic (*Allium vineale*), Mugwort, Wild Lettuce (*Lactuca* sp.), and Avens (*Geum* sp.).

These ponds were constructed between 1962 and 1978 by enlarging a smaller farm pond. The below figure shows the outlines of the existing ponds on a 1959 aerial photograph showing the creation of the two existing ponds in former agricultural fields from the original farm pond.

Figure 6-6: 1959 Aerial Photograph

6.3. Vegetation

A plant list for the Gyrodyne and Flowerfield properties was prepared from the 2008 proposed DEIS (Cameron Engineering) based on ecological surveys completed by Dr. Orland J. Blanchard, Jr. and Thomas W. Cramer, ASLA in 2006 and 2008, and the May 2017 survey completed by Dr. William P. Bowman. See Table 6-2 starting below. A total of 196 vascular plant species were observed at the site, including 92 woody plants, 102 herbaceous plants, and two ferns.

Table 6-2: Plant Species List

a: Plant Species reported in 2008 proposed DEIS (see Appendix E)

b: Additional Plant Species observed by WP Bowman, PhD, May 2017

c: Plant Species reported in 2008 proposed DEIS and observed in 2017

<u>Trees, Shrubs And Woody Vines</u>

Common Name	Scientific Name
Glossy Abelia[b]	*Abelia x grandiflora*

a: Plant Species reported in 2008 proposed DEIS (see Appendix E)

b: Additional Plant Species observed by WP Bowman, PhD, May 2017

c: Plant Species reported in 2008 proposed DEIS and observed in 2017

TREES, SHRUBS AND WOODY VINES

Common Name	*Scientific Name*
Japanese Maple[b]	*Acer palmatum*
Norway Maple[c]	*Acer platanoides*
Red Maple[c]	*Acer rubrum*
Silver Maple[c]	*Acer saccharinum*
Tree-of-Heaven[c]	*Ailanthus altissima*
Mimosa[c]	*Albizia julibrissin*
Porcelainberry [c]	*Ampelopsis brevipedunculata*
Japanese Angelica Tree[a]	*Aralia elata*
Azalea[b]	*Azalea sp.*
Japanese Barberry[b]	*Berberis thunbergii*
Black Birch[c]	*Betula lenta*
Paper Birch[b]	*Betula papyrifera*
Gray Birch[c]	*Betula populifolia*
Pignut Hickory[c]	*Carya glabra*
Mockernut Hickory[c]	*Carya tomentosa*
Asiatic Bittersweet[c]	*Celastrus orbiculatus*
Flowering Quince[a]	*Chaenomeles sp.*
Flowering Dogwood[c]	*Cornus florida*
Yellowwood[b]	*Cladrastis kentukea*
Japanese Cedar[b]	*Cryptomeria japonica*
Leyland Cypress[b]	*Cupressus × leylandii*
Autumn Olive[c]	*Elaeagnus umbellata*
Winged Euonymus[c]	*Euonymus alata*
American Beech[c]	*Fagus grandifolia*
Forsythia[c]	*Forsythia sp.*
White Ash[c]	*Fraxinus americana*
Honey-Locust[c]	*Gleditsia triacanthos*
English Ivy[c]	*Hedera helix*
Rose-of-Sharon[c]	*Hibiscus syriacus*
Hydangea[b]	*Hydrangea macrophylla*
American Holly[c]	*Ilex opaca*
Japanese Holly[b]	*Ilex crenata*
Japanese Walnut/Hybrid Butternut[b]	*Juglans ailantifolia/J. x bixbyi*
Black Walnut[c]	*Juglans nigra*
Red Cedar[c]	*Juniperus virginiana*
Crape Myrtle[b]	*Lagerstroemia sp.*
Privet[c]	*Ligustrum sp.*
Tulip-Tree[c]	*Liriodendron tulipifera*
Japanese Honeysuckle[c]	*Lonicera japonica*

a: Plant Species reported in 2008 proposed DEIS (see Appendix E)	**b: Additional Plant Species observed by WP Bowman, PhD, May 2017**	**c: Plant Species reported in 2008 proposed DEIS and observed in 2017**

TREES, SHRUBS AND WOODY VINES

Common Name	***Scientific Name***
Fly Honeysuckle[c]	*Lonicera morrowi*
Honeysuckle[a]	*Lonicera sp.*
Toringo Crabapple[a]	*Malus sieboldii*
White Mulberry[c]	*Morus alba*
Bayberry[c]	*Myrica pensylvanica*
Virginia Creeper[c]	*Parthenocissus sp.*
Princess Tree[b]	*Paulownia tomentosa*
Ninebark[b]	*Physocarpus opulifolius*
Norway Spruce[c]	*Picea abies*
Dwarf White Spruce[b]	*Picea glauca*
Colorado Blue Spruce[c]	*Picea pungens*
Japanese Black Pine[c]	*Pinus thunbergii*
Big-toothed Aspen[c]	*Populus grandidentata*
Sweet Cherry[c]	*Prunus avium*
Black Cherry[c]	*Prunus serotina*
Japanese Flowering Cherry[b]	*Prunus serrulata 'Kwanzan'*
Douglas Fir[c]	*Pseudotsuga menziesii*
Bradford Pear[b]	*Pyrus calleryana*
Apple[c]	*Pyrus malus*
White Oak[c]	*Quercus alba*
Scarlet Oak[c]	*Quercus coccinea*
Pin Oak[c]	*Quercus palustris*
Black Oak[c]	*Quercus velutina*
Rhododendron[c]	*Rhododendron sp.*
Jetbead[a]	*Rhodotypos scandens*
Dwarf Sumac[c]	*Rhus copallinum*
Smooth Sumac[a]	*Rhus glabra*
Staghorn Sumac[c]	*Rhus typhina*
Black Locust[c]	*Robinia pseudoacacia*
Multiflora Rose[c]	*Rosa multiflora*
Blackberry[c]	*Rubus allegheniensis*
Northern Dewberry[c]	*Rubus flagellaris*
Black Raspberry[a]	*Rubus occidentalis*
Wineberry[c]	*Rubus phoenicolasius*
Weeping Willow[b]	*Salix babylonica*
Pussy Willow[c]	*Salix discolor*
Corkscrew Willow[b]	*Salix matsudana*
Willow[a]	*Salix sp.*
Sassafras[c]	*Sassafras albidum*

a: Plant Species reported in 2008 proposed DEIS (see Appendix E) **b: Additional Plant Species observed by WP Bowman, PhD, May 2017** **c: Plant Species reported in 2008 proposed DEIS and observed in 2017**

TREES, SHRUBS AND WOODY VINES

Common Name	*Scientific Name*
Greenbrier[c]	*Smilax rotundifolia*
Purple Nightshade[c]	*Solanum dulcamara*
Yew[c]	*Taxus sp.*
Arborvitae[b]	*Thuja occidentalis*
Small-leaved Linden[b]	*Tilia cordata*
Silver Linden[b]	*Tilia tomentosa*
Linden[a]	*Tilia sp.*
Poison Ivy[c]	*Toxicodendron radicans*
Northern Hemlock[c]	*Tsuga canadensis*
Viburnum (ornamental)[a]	*Viburnum sp.*
Fox Grape[b]	*Vitis labrusca*
Grape[a]	*Vitis sp.*
Adams Needle[b]	*Yucca filamentosa*

HERBACEOUS PLANTS

Common Name	*Scientific Name*
Three-Seeded Mercury[a]	*Acalypha rhomboidea*
Bent Grass[a]	*Agrostis sp.*
Garlic Mustard[c]	*Alliaria petiolata*
Field Garlic[c]	*Allium vineale*
Common Ragweed[c]	*Ambrosia artemisiifolia*
Broomsedge[c]	*Andropogon virginicus*
Sweet Vernal Grass[a]	*Anthoxanthum odoratum*
Indian Hemp[c]	*Apocynum cannabinum*
Indian Hemp[a]	*Apocynum medium*
Burdock[c]	*Arctium minus*
Mugwort[c]	*Artemisia vulgaris*
Common Milkweed[c]	*Asclepias syriaca*
White Wood Aster[a]	*Aster divaricatus*
Heath Aster[a]	*Aster ericoides*
Panicled Aster[a]	*Aster lanceolatus*
Calico Aster[a]	*Aster lateriflorus*
Winter Cress[c]	*Barbarea vulgaris*
Beggar's-Ticks[a]	*Bidens frondosa*
Hedge Bindweed[c]	*Calystegia sepium*
Spotted Knapweed[c]	*Centaurea maculosa*
Knapweed[a]	*Centaurea nigrescens*
Mouse-Ear Chickweed[c]	*Cerastium vulgatum*
Lamb's Quarters[a]	*Chenopodium album*

a: Plant Species reported in 2008 proposed DEIS (see Appendix E)

b: Additional Plant Species observed by WP Bowman, PhD, May 2017

c: Plant Species reported in 2008 proposed DEIS and observed in 2017

TREES, SHRUBS AND WOODY VINES

Common Name	***Scientific Name***
Chicory[c]	*Cichorium intybus*
Bull Thistle[c]	*Cirsium vulgare*
Horseweed[c]	*Conyza canadensis*
Nutgrass[a]	*Cyperus strigosus*
Orchard Grass[c]	*Dactylis glomerata*
Queen Anne's Lace[c]	*Daucus carota*
Deptford Pink[c]	*Dianthus armeria*
Smooth Crabgrass[a]	*Digitaria ischaemum*
Crabgrass[a]	*Digitaria sanguinalis*
Indian Strawberry[c]	*Duchesnea indica*
Quack Grass[a]	*Elytrigia repens*
Love Grass[a]	*Eragrostis pectinacea*
Daisy Fleabane[a]	*Erigeron sp.*
White Snakeroot[c]	*Eupatorium rugosum*
Grass-leafed Goldenrod[c]	*Euthamia graminifolia*
Fescue[c]	*Festuca sp.*
Siberian Geranium[a]	*Geranium sibiricum*
Avens[a]	*Geum sp.*
Gill-over-the-Ground[c]	*Glechoma hederacea*
Hawkweed[c]	*Hieracium sp.*
Hosta[b]	*Host asp.*
Dwarf St. John's Wort[a]	*Hypericum mutilum*
Common St. John's Wort[a]	*Hypericum perforatum*
Cat's Ear[c]	*Hypochaeris radicata*
Jewelweed[b]	*Impatiens capensis*
Path Rush[a]	*Juncus tenuis*
Wild Lettuce[a]	*Lactuca canadensis*
Prickly Lettuce[a]	*Lactuca serriola*
Silver Dead Nettle[b]	*Lamium maculatum*
Peppergrass[a]	*Lepidium virginicum*
Butter-and-Eggs[c]	*Linaria vulgaris*
False-Pimpernel[a]	*Lindernia dubia*
Indian Tobacco[a]	*Lobelia inflata*
Eulalia[c]	*Miscanthus sinensis*
Nimblewill[a]	*Muhlenbergia schreberi*
Evening Primrose[c]	*Oenothera sp.*
Yellow Wood Sorrel[a]	*Oxalis sp.*
Deertongue Grass[c]	*Panicum clandestinum*
Fall Panicum[a]	*Panicum dichotomiflorum*

a: Plant Species reported in 2008 proposed DEIS (see Appendix E)

b: Additional Plant Species observed by WP Bowman, PhD, May 2017

c: Plant Species reported in 2008 proposed DEIS and observed in 2017

TREES, SHRUBS AND WOODY VINES

Common Name	***Scientific Name***
Grass of Parnassus[b]	*Parnassia palustris*
Timothy Grass[c]	*Phleum pratense*
Common Reed[b]	*Phragmites australis*
Pokeweed[c]	*Phytolacca americana*
English Plantain[c]	*Plantago lanceolata*
Common Plantain[c]	*Plantago major*
Speargrass[a]	*Poa annua*
Smartweed[a]	*Polygonum cespitosum*
Mild Water-Pepper[a]	*Polygonum hydropiperoides*
Pale Smartweed[a]	*Polygonum lapathifolium*
Lady's Thumb[a]	*Polygonum persicaria*
Rough-fruited Cinquefoil[a]	*Potentilla recta*
Heal-All[c]	*Prunella vulgaris*
Tall Buttercup[b]	*Ranunculus acris*
Buttercup[a]	*Ranunculus sp.*
Black-eyed Susan[c]	*Rudbeckia hirta*
Sheep Sorrel[c]	*Rumex acetosella*
Curled Dock[c]	*Rumex crispus*
Broad Dock[a]	*Rumex obtusifolius*
Giant Foxtail[a]	*Setaria faberi*
Yellow Foxtail[c]	*Setaria pumila*
Green Foxtail[c]	*Setaria viridis*
White Campion[a]	*Silene latifolia*
Canada Goldenrod[a]	*Solidago canadensis*
Early Goldenrod[a]	*Solidago juncea*
Gray Goldenrod[a]	*Solidago nemoralis*
Sweet Goldenrod[a]	*Solidago odora*
Rough-stemmed Goldenrod[a]	*Solidago rugosa*
Showy Goldenrod[a]	*Solidago speciosa*
Horse-Nettle[a]	*Solanum carolinense*
Common Chickweed[c]	*Stellaria media*
Dandelion[c]	*Taraxacum officinale*
Goatsbeard[a]	*Tragopogon pratensis*
Purple-Top[c]	*Tridens flavus*
Red Clover[c]	*Trifolium pratense*
White Clover[c]	*Trifolium repens*
Moth Mullein[a]	*Verbascum blattaria*
Common Mullein[c]	*Verbascum thapsus*
Common Periwinkle[b]	*Vinca minor*

a: Plant Species reported in 2008 proposed DEIS (see Appendix E)	b: Additional Plant Species observed by WP Bowman, PhD, May 2017	c: Plant Species reported in 2008 proposed DEIS and observed in 2017

TREES, SHRUBS AND WOODY VINES

Common Name	*Scientific Name*
Common Blue Violet[c]	*Viola sororia*

FERNS AND FERN ALLIES

Common Name	*Scientific Name*
Sensitive Fern[b]	*Onoclea sensibilis*
New York Fern[c]	*Thelypteris noveboracensis*

6.4. Wildlife

The birds, herpetiles, mammals, fish, and butterflies/dragonflies observed or expected to occur on the subject property, and their abundance and distribution on the site, are determined by the quality and composition of the existing habitats. The wildlife species observed or expected to occur (presented in Table 6-3 (starting on page 6-21) through Table 6-6 (starting on page 6-25) are based on field surveys by Dr. Orland J. Blanchard. and Thomas W. Cramer, ASLA in 2006 to 2008 (Cameron Engineering) and Dr. William P. Bowman in 2017. Mowed lawn, mowed lawn with trees, and hard surfaces (i.e. parking areas, roadways, and buildings) account for 52.87 acres (70.51%) of the site. These cultural ecological communities provide limited habitat for wildlife due to the poor diversity, abundance, and structure of the existing vegetation. The wildlife species that do utilize these habitats are highly tolerant of human activity and, accordingly, tend to be familiar and abundant species of suburban habitats. The successional southern hardwoods, successional old fields, and overgrown hedgerows provide the greatest wildlife habitat potential at the subject site despite historical and on-going disturbance and the abundance of invasive plant species. These habitats account for 19.25 acres (25.7%) of the site.

Birds

Forty-five bird species have been observed on the subject property with an additional thirty-five species expected to occur based on the habitat types present. In general, the observed species are typical of suburban landscapes, open fields, shrublands and woodlands, and forest edges. Wildlife species that require large tracts of forested habitat or are intolerant of human activity are not expected to utilize the site. Approximately 71% of these birds (i.e. 57 species) may utilize the property for breeding habitat based on the observed habitat conditions and known bird breeding activity documented in the 2008 New York Breeding Atlas in the vicinity of Stony Brook/St James/Head of the Harbor (McGowan and Corwin, 2008). Approximately 60% of these birds (i.e. 48 species) are expected to transiently utilize the site seasonally such as the summer months only, only during spring and autumn migrations, or as overwintering habitat. The remaining 32 species can be found year round in appropriate habitats on Long Island.

Table 6-3: Bird Species Observed/Expected On-Site[25]

Scientific Name	Common Name	Observed (O) or Expected (E)	Breeding Status (Y) or (N)[26]	Year Round (Y) Summer Resident (S) Migrant (M) or Overwintering
Anas platyrhynchos	Mallard	O	Y	Y
Branta canadensis	Canada Geese	O	Y	Y
Cygnus olor	Mute Swan	O	Y	Y
Colinus virginianus	Northern Bobwhite	O	Y	Y
Ardea Herodias	Great Blue Heron	O	N	Y
Accipiter cooperii	Cooper's Hawk	E	N	Y
Accipiter striatus	Sharp-shinned Hawk	E	N	Y
Buteo jamaicensis	Red-tailed Hawk	E	Y	Y
Falco sparverius	American Kestrel	E	N	M
Charadrius melodius	Killdeer	E	Y	S
Columba livia	Rock Dove	E	Y	Y
Zenaida macroura	Mourning Dove	O	Y	Y
Bubo virginianus	Great Horned Owl	E	Y	Y
Otus asio	Eastern Screech Owl	E	Y	Y
Chaetura pelagica	Chimney Swift	E	Y	S
Ceryle alcyon	Belted Kingfisher	E	Y	Y
Colaptes auratus	Northern Flicker	O	Y	S
Melanerpes carolinus	Red-bellied Woodpecker	O	Y	S
Picoides pubescens	Downy Woodpecker	O	Y	Y
Picoides villosus	Hairy Woodpecker	O	Y	Y
Sphyrapicus varius	Yellow-bellied Sapsucker	E	N	O
Empidonax traillii	Willow Flycatcher	E	N	S
Myiarchus crinitus	Great-crested Flycatcher	E	Y	S
Sayornis phoebe	Eastern Phoebe	O	N	S
Tyrannus tyrannus	Eastern Kingbird	E	Y	S
Vireo griseus	White-eyed Vireo	E	Y	S
Vireo olivaceus	Red-eyed Vireo	E	Y	S
Vireo solitarius	Blue-headed Vireo	O	N	M
Corvus brachyrhynchos	American Crow	O	Y	Y
Corvus ossifragus	Fish Crow	E	Y	Y
Cyanocitta cristata	Blue Jay	O	Y	Y

[25] Species Observed During Field Surveys in 2006 (OJ Blanchard), 2008 (TW Cramer), 2017 (WP Bowman)
[26] Based on New York State Breeding Bird Atlas (McGowan and Corwin, 2008); Y = Yes, Breeding is known to occur in local Breeding Bird Atlas Block (Block #6552A); N = No, Breeding is not known to occur in local Breeding Bird Atlas Block
[27] Y = Species can be found year-round; M = Species can be during spring or autumn migrations; O = Species are expected to overwinter; S = Species can be found in summer and when arriving and departing during migration.

Scientific Name	Common Name	Observed (O) or Expected (E)	Breeding Status (Y) or (N)[26]	Year Round (Y) Summer Resident (S) Migrant (M) or Overwintering
Hiruno rustica	Barn Swallow	E	Y	S
Tachycineta bicolor	Tree Swallow	O	Y	S
Baeolophus bicolor	Tufted Titmouse	O	Y	Y
Poecile atricapillus	Black-capped Chickadee	O	Y	Y
Sitta canadensis	Red-breasted Nuthatch	E	N	M
Sitta carolinensis	White-breasted Nuthatch	E	Y	Y
Certhia americana	Brown Creeper	E	N	M
Thyrothorus ludovicianus	Carolina Wren	O	Y	Y
Troglodytes aedon	House Wren	O	Y	S
Regulus calendula	Ruby-crowned Kinglet	O	N	O
Regulus satrapa	Golden-crowned Kinglet	O	N	O
Catharus fruscescens	Veery	E	N	S
Catharus guttatus	Hermit Thrush	O	N	O
Hylocichla mustelina	Wood Thrush	E	Y	S
Turdus migratorius	American Robin	O	Y	Y
Dumetella carolinensis	Gray Catbird	O	Y	S
Mimus polyglottos	Northern Mockingbird	O	Y	Y
Sturnus vulgaris	European Starling	O	Y	Y
Bombycilla cedrorum	Cedar Waxwing	O	Y	Y
Dendroica caerulescens	Black-throated Blue Warbler	O	N	M
Dendroica coronata	Yellow-rumped Warbler	O	N	O
Geothlypis trichas	Common Yellowthroat	O	Y	S
Mniotilta varia	Black-and-white Warbler	O	Y	S
Setophaga petechia	Yellow Warbler	O	Y	S
Setophaga pinus	Pine Warbler	E	N	S
Setophaga ruticilla	American Redstart	O	Y	M
Vermivora pinus	Blue-winged Warbler	E	Y	S
Junco hyemalis	Dark-eyed Junco	O	N	O
Melospiza melodia	Song Sparrow	O	Y	Y
Passerella iliaca	Fox Sparrow	O	N	O
Pipilo	Eastern Towhee	O	Y	S
Spizella arborea	American Tree Sparrow	E	N	O
Spizella passerina	Chipping Sparrow	O	Y	S
Spizella pusilla	Field Sparrow	O	Y	S
Zonotrichia albicollis	White-throated Sparrow	O	N	O
Cardinalis cardinalis	Northern Cardinal	O	Y	Y

Scientific Name	Common Name	Observed (O) or Expected (E)	Breeding Status (Y) or (N)[26]	Year Round (Y) Summer Resident (S) Migrant (M) or Overwintering
Passerina cyanea	Indigo Bunting	E	Y	S
Pheucticus ludovicianus	Rose-breasted Grosbeak	E	Y	S
Piranga olivacea	Scarlet Tanager	E	Y	S
Agelaius phoeniceus	Red-winged Blackbird	O	Y	S
Icterus galbula	Baltimore Oriole	E	Y	S
Icterus spurious	Orchard Oriole	E	Y	S
Molothrus ater	Brown-headed Cowbird	E	Y	S
Sturnella magna	Eastern Meadowlark	E	N	S
Quiscalus quiscula	Common Grackle	O	Y	S
Carduelis tristis	American Goldfinch	O	Y	Y
Carpodacus mexicanus	House Finch	O	Y	Y
Carpodacus purpureus	Purple Finch	E	N	O
Passer domesticus	House Sparrow	E	Y	Y

<u>Mammals:</u>
Five mammal species (or scat/sign of these species) were observed at the site: gray squirrel (*Sciurus carolinensis),* eastern cottontail (*Sylvilagus floridanus),* eastern chipmunk (*Tamias striatus*), raccoon (*Procryon lotor*), and white-tailed deer (*Odocoileus virginianus*). Table 6-4 below provides a list of all mammal species observed or expected to occur on-site based on habitat preferences (Connor, 1971) and the ecological communities present. All observed or expected mammals are common in suburban landscapes; prefer open, early successional, or edge habitats; and are tolerant of human activity.

The expected bat species, big brown bat (*Eptesicus fuscus*), eastern red bat (*Lasiurus borealis*), northern long-eared bat (*Myotis septentrionalis*), and little brown bat (*Myotis lucifugus*), are based on Fishman (2013) and Connor (1971). The northern long-eared bat (*Myotis septentroinalis*) was listed in 2016 as threatened by the US Fish and Wildlife Service and the New York State Department of Environmental Conservation. The northern long-eared bat can utilize a wide variety of upland woodland and forest types (NYNHP, 2016), but are typically associated with mature interior forest (Carroll et al, 2002) and tend to avoid woodlands with significant edge habitat (Yates and Muzika 2006). Other studies have found that northern long-eared bat can also be found using younger forest types (NYNHP, 2016). Due to the northern long-eared bats preference for mature interior forests, this species is not considered expected to occur on the subject property.

Table 6-4: Mammal Species Observed Or Expected On Site

Scientific Name	Common Name
Blarina brevicauda	Short-tailed Shrew
Didelphis virginiana	Virginia Opossum

Scientific Name	Common Name
Eptesicus fuscus	Big Brown Bat
Lasiurus borealis	Eastern Red Bat
Marmota monax	Woodchuck
Microtus	Meadow Mouse
Mus musculus	House Mouse
Myotis lucifugus	Little Brown Bat
Odocoileus	White-tailed Deer
Peromyscus leucopus	White-footed
Pitymys pinetorum	Pine Mouse
Procyon lotor[28]	Raccoon
Rattus norvegicus	Norway Rat
Scalopus aquaticus	Eastern Mole
Sciurus carolinensis[28]	Gray Squirrel
Sorex cinereus	Masked Shrew
Sylvilagus floridanus[28]	Eastern Cottontail
Tamias striatus[28]	Eastern Chipmunk
Vulpes vulpes	Red Fox

Reptiles, Amphibians, and Fish:

Approximately nine species of reptiles and amphibians are expected to occur on the subject site (Table 6-5) based on site observations, existing habitat types, and the New York State Herpetological Atlas (NYSDEC, 2009). The New York State Herpetological Atlas provides known records of reptile and amphibian species from 1990-1998 for each 7.5-minute USGS topographic quadrangle within New York State. The expected reptile and amphibian species listed in Table 6-5 below are based on the Saint James, NY quadrangle. The eastern box turtle (*Terrapene carolina*) is listed as a New York State Species of Special Concern and is a common inhabitant of dry and moist woodlands, brushy fields, marsh edges, and bottomlands (Massachusetts Division of Fisheries and Wildlife, 2015). The red-backed salamander (*Plethodon cinereus*) is a terrestrial species that inhabits woodlands with abundant logs, leaf litter, rocks, and moss to provide shelter for it and its prey. The common and ubiquitous garter snake can be found in various woodlands, fields, and suburban habitats, especially near water, and is expected to be present throughout the property. The remaining reptiles and amphibian species potentially present on-site would be associated with the small man-made ponds and their shorelines.

Table 6-5: Reptile & Amphibian Species Observed Or Expected On Site

Scientific Name	Common Name
Chelydra serpentina	Common Snapping Turtle
Chrysemys picta	Eastern Painted Turtle
Plethodon cinereus	Red-backed Salamander
Pseudacris crucifer	Northern Spring Peeper
Rana catesbeiana	Bullfrog
Rana clamitans	Green Frog
Terrepene carolina	Eastern Box Turtle

[28] Species observed on-site by WP Bowman in 2017.

Thamnophis sirtalis	Common Garter Snake
Trachemys scripta	Red-eared Slider

Other Species:

Butterflies and dragonflies observed during the ecological surveys of the subject site were inventoried and are presented in Table 6-6 below.

Table 6-6: Butterfly & Other Species Expected On Site

Scientific Name	Common Name
Butterflies	
Atalopedes campestris	Sachem[29]
Cercyonis pegala	Common Wood Nymph[29]
Colias eurytheme	Orange Sulfur[29]
Colias philodice	Clouded Sulfur[29]
Danaus plexippus	Monarch[29]
Epargyreus clarus	Silver-spotted Skipper[29]
Everes comyntas	Eastern Tailed Blue[29]
Junonia coenia	Common Buckeye[29]
Limenitis arthemis	Red-spotted Purple[29]
Lycaena phlaeas	American Copper[29]
Megisto cymela	Little Wood Satyr[29]
Nymphalis antiopa	Mourning Cloak[29]
Papilio glaucus	Eastern Tiger Swallowtail[30]
Papilio troilus	Spicebush Swallowtail[29]
Phoebis sennae	Cloudless Sulfur[29]
Phyciodes tharos	Pearl Crescent[29]
Pieris rapae	Cabbage White[29]
Poanes hobomok	Hobomok Skipper[29]
Poanes zabulon	Zabulon Skipper[29]
Polites peckius	Peck's Skipper[29]
Polites themistocles	Tawny-edged Skipper[29]
Satyrium liparops	Striped Hairstreak[29]
Satyrium titus	Coral Hairstreak[29]
Strymon melinus	Gray Hairstreak[29]
Vanessa atalanta	Red Admiral[29]
Dragonflies	
Anax junius	Green Darner[29]
Pantala hymenaea	Spot-winged Glider[30]

[29] Reported in Cameron Engineering proposed DEIS (2008) – see Appendix E: Ecology Analysis
[30] Observed by WP Bowman in May 2017

6.5. Endangered, Threatened, Rare Species or Significant Ecological Communities

No endangered, threatened, or rare species or significant ecological communities were observed during the ecological surveys conducted in 2006 (Orland J. Blanchard), 2008 (Thomas W. Kramer), and 2017 (William P. Bowman) due to the extensive historical disturbance at the subject site. New York Natural Heritage Program correspondence from April 17, 2008 indicates that the NYNHP has no records of known occurrences of rare or state-listed animals or plants, significant natural communities, or other significant habitats, on or in the vicinity of the site (see Appendix E: Ecology Analysis). Recent searches of New York State Department of Environmental Conservation online databases, i.e. the New York State Environmental Resource Mapper (www.dec.ny.gov/gis/erm) and New York State EAF Mapper (www.dec.ny.gov/eafmapper) indicate no records of endangered, threatened, or rare species or significant ecological communities on or in the vicinity of the site.

Three species listed as Species of Special Concern by New York State are expected to occur on or utilize the Flowerfield property as habitat. Species of Special Concern are species for which a welfare concern or risk of endangerment has been documented in New York State. These three species include:

Eastern Box Turtle	*Terrapene carolina*
Cooper’s Hawk	*Accipiter cooperii*
Sharp-shinned Hawk	*Accipiter striatus*

The eastern box turtle (*Terrapene carolina*) would be expected to be found in any of the vegetated upland habitats on-site including the successional southern hardwoods, successional old fields, mowed lawn areas (with and without trees), and overgrown hedgerows. While box turtles are expected to be present on the site, several potential threats to box turtles limit the on-site habitat quality for this species including mowing of the fields and lawns and mortality from cars on the site’s roads and parking areas.

Cooper’s hawk (*Accipiter cooperii*) and sharp-shinned hawk (*Accipiter striatus*) inhabit various upland and wetland forests during the breeding season including fragmented forests within agricultural, suburban, and urban landscapes with sharp-shinned hawks preferring forest edge habits. Neither species was documented to nest in the Stony Brook/St James/Head of Harbor area by the 2008 New York State Breeding Bird Atlas (McGowan and Corwin, 2008); however, Cooper’s hawks breeding sites have been expanding in New York over the last several decades. During the winter months, both species frequent residential areas to hunt for songbirds at bird feeders. Both species are expected to utilize the subject site as foraging habitat during any season.

6.6. Potential Impacts to Ecological Communities, Plants, and Wildlife

The potential development of Lots 3 through 9 will affect 16.66 acres of the mowed lawn, mowed lawn with trees, successional old fields, overgrown hedgerows, and successional southern hardwoods on the Flowerfield property. As shown on Table 6-7, the proposed development of Lots 3 through 8 and construction of the Sewage Treatment Plant in Lot 9 will result in the loss of 2.43 acres of mowed lawn with trees, 7.85 acres of mowed lawn, 1.22 acres of successional old fields, 2.65 acres of overgrown hedgerows, and 2.51 acres of successional southern hardwoods. The acreage of hard, impervious surfaces (existing 18.87 acres) is proposed to increase by 16.95 acres and would then comprise approximately 48% of the subject site. In total, approximately 6.38 acres of "natural habitats" (i.e. successional southern hardwoods, successional old fields, and overgrown hedgerows) will be converted to impervious hard surfaces.

Table 6-7: Proposed Changes in Ecological Community Coverages (Acres)

Ecological Community Type	Existing	Percent	Proposed	Percent	Change	Percent Change
Hard Surfaces	18.87	25.17%	35.82	47.77%	16.95	22.61%
Mowed Lawn with Trees	14.03	18.71%	11.60	15.47%	-2.43	-3.24%
Mowed Lawn	19.97	26.63%	12.12	16.16%	-7.85	-
Successional Southern Hardwoods	8.29	11.06%	5.78	7.71%	-2.51	-3.35%
Successional Old Field	4.51	6.01%	3.29	4.39%	-1.22	-1.63%
Overgrown Hedgerows	6.45	8.60%	3.80	5.07%	-2.65	-3.53%
Orchard	0.84	1.12%	0.56	0.75%	-0.28	-0.38%
Artificial Pond	2.02	2.69%	2.02	2.69%	0.00	0.00%
Total Site	74.98	100%	74.98		0.02	

Note: Numbers may not add directly due to rounding.

The loss of these 6.38 acres of early successional communities will result in decreased habitat availability for the plants, birds, and other wildlife that utilize these habitats and a corresponding decrease in the abundance and diversity of the plant and wildlife species present at the site. The proposed subdivision will also result in the loss of 10.28 acres of mowed lawn and mowed lawn with trees. The loss of these 10.28 acres of mowed lawn habitats will not result in any significant ecological impacts due to the poor diversity and wildlife habitat provided by these habitats.

Under both existing and proposed conditions, the site is expected to support only relatively common, suburban, human-tolerant wildlife species. However, under the proposed conditions, human disturbance/activity will be increased and available habitat will be reduced and limited to the narrow (190 to 300-foot) strip of habitat between Route 25A and Lots 4, 5, and 7 and the 80- to 110-foot wide buffer surrounding the eastern pond. Accordingly, those species that are least tolerant of human activity, require greater habitat quality or diversity, or require larger habitat patches will be most impacted and less likely to utilize the site under the proposed conditions.

While the proposed action will result in the loss of 6.38 acres of successional old fields, successional southern hardwoods, and overgrown hedgerows and 10.28 acres of mowed lawn (with and without trees), the resulting habitat loss and any subsequent reductions in local abundance of bird or wildlife species is not expected to be a significant adverse environmental impact, as:

- Successional old fields and successional southern hardwoods are classified by the New York Natural Heritage Program as "demonstrably secure" both in New York State and globally (Edinger et al. 2002). Accordingly, these habitats are abundant both locally and throughout New York State.

- These habitats are not known to provide habitat for any endangered, threatened, or rare wildlife or plant species.
- Approximately 70.9% of the successional old fields and successional southern hardwoods, 3.29 and 5.78 acres respectively, will be retained on-site. However, these remaining habitats will experience a reduction in habitat quality due to the intensification of human activity at its edges.
- The 3.9 acres of mowed lawns and mowed lawn with trees remaining within Lot 9 (excluding the Sewage Treatment Plant site) will likely transition to old field and subsequently hardwood forest habitats over time.

6.7. Potential Impacts to Wetlands and Wetland-dependent Wildlife

No alterations to the existing ponds are included in the proposed subdivision. The existing overgrown hedgerows (approximately 50-75 feet in width) shall be maintained and an additional buffer area shall be provided to maintain 80-110 feet of naturally vegetated buffer area. This would represent a minor positive impact to this eastern pond. However, the habitat quality provided to birds and wildlife by this expanded buffer area would likely be reduced due to the intensification of the human disturbance and activity along the landward edges of the buffer associated with the development of the roadways and the proposed hotel, spa, and conference center. Water quality impacts or benefits may be realized within the existing ponds (with resulting effects on aquatic wildlife such as amphibians and fish) depending on stormwater generation and management under the proposed subdivision and the potential increased use of fertilizers in areas surrounding the ponds.

6.8. Endangered, Threatened, Rare Species or Significant Ecological Communities

No endangered, threatened, or rare species or significant ecological communities are known to be present on the subject site; accordingly, no impacts to endangered, threatened, or rare species or significant ecological communities shall result from the proposed action.

Three species listed as Species of Special Concern by New York State are expected to occur on or utilize the Gyrodyne-Flowerfield properties as habitat including eastern box turtle (*Terrapene carolina*), Cooper's hawk (*Accipiter cooperii*), and sharp-shinned hawk (*Accipiter striatus*). The existing habitat available on the site for box turtles is limited in quality by potential mortality from mowers in maintained lawn areas and vehicles in roadways and parking areas. The proposed action will result in a loss of this poor-quality habitat for box turtles and a further degradation of habitat quality in the habitat patches that will remain in Lot 8 due to construction of additional paved surfaces (and resulting vehicle traffic) adjacent to the remaining habitat patches.

The eastern box turtle (*Terrapene carolina*) would be expected to be found in any of the vegetated upland habitats on-site including the successional southern hardwoods, successional old fields, mowed lawn areas (with and without trees), and overgrown hedgerows. While box turtles are expected to be present on the site, several potential threats to box turtles limit the on-site habitat quality for this species including mowing of the fields and lawns and mortality from cars on the site's roads and parking areas.

The proposed subdivision and development on Lots 4 through 9 will result in a loss of foraging habitat and degradation of habitat quality for Cooper's hawk (*Accipiter cooperii*) and sharp-shinned hawk (*Accipiter striatus*) although these species will likely continue to hunt the human-tolerant songbirds and doves that will utilize the developed properties and their landscaped borders.

6.9. Proposed Mitigation

Potential mitigation measures to reduce environmental impacts associated with the proposed subdivision and development on Lots 4 through 9 could include the following:

- Incorporation of the large existing trees around the edges of the mowed lawn areas into the proposed development and landscaping plan to the maximum extent practical.
- Increasing the habitat quality provided in the undeveloped portions of Lot 9 and the proposed buffer area surrounding the eastern pond by management of invasive species and/or either planting of native trees (to facilitate the development of a native forest community) or establishment of a meadow habitat dominated by native grasses and wildflowers.
- Use of native plant species in the site's landscaped areas to the maximum extent practical.

7. Groundwater

7.1. Existing Conditions

Long Island's water supply comes from groundwater beneath the earth's surface from one of four geological formations that comprise the Long Island Aquifer System. There are no Special Groundwater Protection Areas located within the site.

Groundwater mainly originates as precipitation that has percolated hundreds or thousands of feet though voids within the soil, eventually reaching down to the aquifers. The shallowest aquifer has the newest groundwater and the deepest aquifer has the oldest groundwater. The water table (below which, all material is fully saturated) over most of Long Island, including the Flowerfield property, is in the Upper Glacial Aquifer. Based on generalized infiltration flow diagrams, treated water recharged at this location is expected to reach the Magothy Aquifer. The Magothy Aquifer is approximately 100 to 500 feet below grade and consists of fine to coarse sand of moderate-to-high permeability, with interbedded lenses of silt and clay of low permeability. The Magothy Aquifer's hydraulic conductivity is approximately 50 feet/day in the horizontal direction and about 1.4 feet/day in the vertical direction (Frank & Cohen, 1972).

The Upper Glacial Aquifer is above the Magothy, extending for the first ±100 feet below grade. This formation is comprised primarily of glacio-fluvial sand and gravel, generally with greater water transmitting properties then the underlying deposits. The highly permeable material has a typical horizontal hydraulic conductivity (K) of approximately 270 feet/day and a vertical conductivity of approximately 27 feet/day (Frank & Cohen).

Both underlying aquifers have horizontally flowing groundwater, based on their significantly higher horizontal than vertical hydraulic conductivity.

Figure 7-1: Conceptual Diagram of Long Island Aquifers

Ground surface

Deeper groundwater	
	Upper Glacial Aquifer
	Magothy Aquifer (largest and holds the most water)*
	Raritan Clay: sections of this clay layer have permeable formations with groundwater
	Lloyd Aquifer (oldest water up to ±5,000 years old)

**Parts of the South Shore (does not pertain to Gyrodyne) also have minor aquifers between the Upper Glacial and Magothy Aquifers: the Jameco Aquifer and the Gardiners Clay layer.*

The Suffolk County Department of Planning[31] has mapped this property as part of Groundwater Management Zone VIII, which "encompasses the North Shore area of the towns of Huntington, Smithtown, and Brookhaven; this is also a shallow groundwater flow system." This zone is characterized by generally horizontal groundwater flow, as described below. Discharges into this system would contribute only to the shallow

[31] Suffolk County Comprehensive Plan 2035, Volume 1 Appendix B, Map 2 Hydrogeologic Zones

groundwater flow system, and therefore would not impact the deeper aquifers utilized for water supply. This flow system enters the North Shore bays, whose water quality is largely dependent on Long Island Sound.

The water table generally follows the same contours as the land surface. The highest points in the water table form a ridgeline called the "groundwater divide," which runs the length of Long Island along two moraines. The site is on the western edge of the Stony Brook Moraine, north of the Harbor Hill Moraine shown in Figure 7-2. The site lies north of the groundwater divide, and therefore the water that enters the groundwater in this area eventually migrates north towards Long Island Sound. The regional groundwater flow is towards the north-northwest, towards Stony Brook Harbor and Smithtown Bay.

Figure 7-2: USGS Map of Glacial Moraines on Long Island[32]

Public water supply wells draw their water, predominantly, from the Magothy, rather than the Upper Glacial, because the Magothy is less contaminated.

According to the 2018 SCWA *Drinking Water Quality Report's* Water Distribution Area Index, the site is in Distribution Area 15 which is north of Middle Country Road and east of Astor Avenue. This area's latest water quality tests of roughly 80 contaminants (inorganics, synthetic organics, and volatile organics) found levels above the stated threshold for just one element: iron. The average 70 ug/L reading, which represents the amount typically present in drinking water on any given day, is below the 300 ug/L threshold. An additional ±200 other contaminants were tested for but not detected at all.

According to the 2017 St. James Water District *Drinking Water Quality Report* (Spring 2018), the District complies with State regulations to test drinking water for over one hundred potential contaminants: total coliform, bacteria, turbidity, inorganic compounds, nitrate, nitrite, 26 metals including lead and copper, 85 volatile organic compounds, total trihalomethanes, and synthetic organic compounds which include 22 pesticides.

Of any detected contaminant during the most recent testing, none was found in high enough concentrations to exceed the corresponding action level.

[32] USGS Location map of Long Island and the generalized glacial moraines, accessed via https://www.usgs.gov/media/images/location-map-long-island-and-generalized-glacial-moraines.

Pumped water is adjusted with lime to a slightly alkaline pH of ±7.2 to reduce corrosion of water mains and in-house plumbing. Chlorine is added for disinfecting purposes. The District's water is not hard water, averaging 48 ppm.

In 2017, the District drew 588 million gallons of water (97% for individual users).

Every three years, the District performs lead and copper water sampling from specific houses chosen from those built prior to the 1982 Town-wide ban on lead solder; no home in the District is served with lead pipes. According to the District's 2017 *Drinking Water Quality Report*, no sample has ever exceeded the lead or copper Action Level Limits, including the most recent (2016) sampling.

<u>Groundwater Depth</u>

The closest United States Geological Survey (USGS) well to the site (Well S 42683.1) is located on Oxhead Road, approximately 600 feet east of Stony Brook Road (near Marion Avenue)[33]. The USGS recordings for this well date back to August 1972, with field-measured water depths ranging from 53.43 to 60.40 feet above the NGVD29 vertical datum. Since the reported surface elevation is 145.7 feet above NGVD29, this translates to groundwater depths of 85.3 to 92.27 feet below grade over a 45-year period.

Based on the topographic survey utilized in the Cameron Engineering Subdivision Plan, the existing grades on the Flowerfield property generally range from 140 feet to 160 feet, except for a small section near the "Fairgrounds" driveway on Route 25A at the northeast corner, where the grades slope down to ±120 feet. The property is at a higher overall elevation than the USGS well, and as shown in Figure 7-3 on page 7-4, groundwater is deeper beneath the Flowerfield property than at the nearest USGS well. The two colors in Figure 7-3 reflect a minimum depth to groundwater of 101 feet, to a maximum in the range of 126-150 feet below the surface.

[33] USGS National Water Information System: Web Interface. Site Map for New York. Well Reference: USGS 405335073073201 S 42683.1. accessed on May 22, 2017 via https://nwis.waterdata.usgs.gov/ny/nwis/gwlevels?site_no=405335073073201

Figure 7-3: Groundwater Map[37]

[37] USGS Long Island Depth to Water Viewer accessed at https://ny.water.usgs.gov/maps/li-dtw10/

Groundwater Travel Time

According to the 2015 Suffolk County Comprehensive Water Resources Management Plan model of groundwater travel time to the nearest major surface water interface, groundwater below most of the Flowerfield site will reach the Stony Brook Harbor in the range of 10 to 25 years. The southwestern portion of the property is in the longer 25 to 50 year travel time zone. See Figure 7-4 on the next page.

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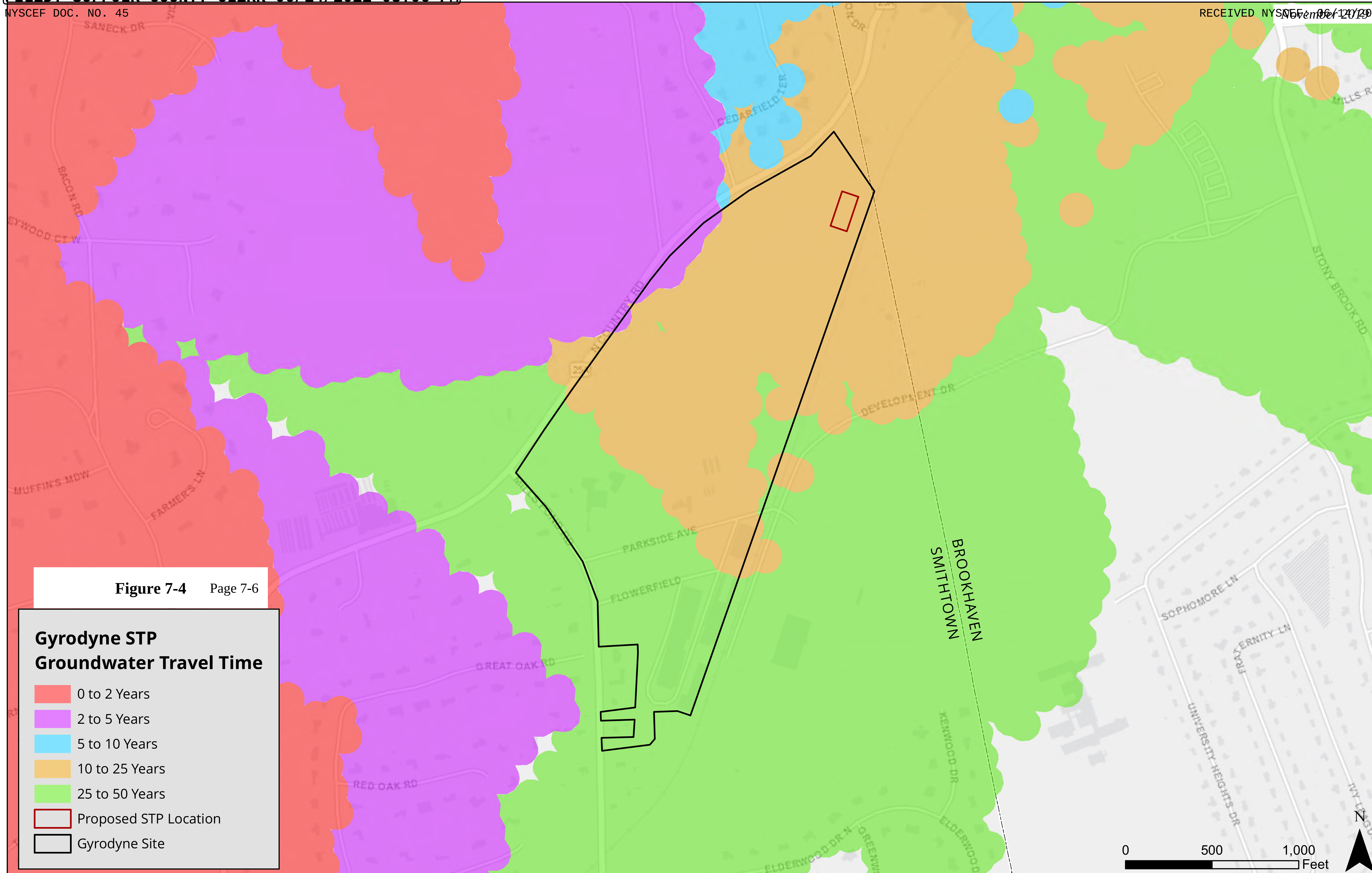


Figure 7-4 Page 7-6

Stony Brook Harbor/Smithtown Bay

There is much interest in the overall waste loading and in particular the nitrogen loading to groundwater. Groundwater flow from the site is generally to the northwest towards Stony Brook Harbor with the majority of the site having a travel time range of 10 to 25 years as per the most recent available Suffolk County GIS-based groundwater model.[35] The remaining balance of the site includes an area in the southwestern portion of the site showing 25 to 50 year travel time and a very small portion within the 2 to 5 year range. The Stony Brook Harbor/West Meadow Creek (1702-0047) is classified as an impaired waterbody; however it is not currently listed on NYS Section 303(d) List of Impaired/TMDL Waters. As per the NYSDEC website for impaired waterbodies, the sources of pollutants for Stony Brook Harbor/West Meadow Creek are identified as urban/stormwater runoff and other (boat pollution). Typically, excess nitrogen has been identified as contributing to hypoxia events within embayment areas along Long Island Sound per the NYSDEC information. Long Island Sound Study (LISS) maps indicate a hypoxic area in Smithtown Bay.

Figure 7-5: Frequency of Hypoxia in Bottom Waters (LISS)

LISS has specifically discussed this location, with "the primary driver of hypoxia in this case is a reduction of water circulation, which is a physical process" (longislandsoundstudy.net). The lack of circulation, due to the small opening available for water exchange (between Cranes Neck on the east and Eatons Neck on the west), creates a stratification during the summer (warm fresh water floats above the cold saltier water) and "seals off the bottom water from access to oxygen from the surface… it is possible that this lack of circulation also traps nitrogen and organic matter from [the Kings Park] sewage

[35] Comprehensive Water Resources Management Plan for Suffolk County, Task 15 – Groundwater Contributing Area Assessment, accessed at: http://www.suffolkcountyny.gov/Departments/HealthServices/EnvironmentalQuality/WaterResources/ComprehensiveWaterResourcesManagementPlan/Task15.aspx

treatment plant or other natural and/or human induced causes" (longislandsoundstudy.net). These variables make Smithtown Bay more sensitive to nitrogen loading (Swanson et. al, 2016) and "is an excellent example of how physical factors beyond our control can contribute to, or even cause hypoxia… there are many historical accounts of hypoxia in areas with poor circulation and high stratification from before large scale human influence on our estuaries began, but there is also no doubt that increases in human induced nutrient load from sewage treatment plants and fertilizers is a major contributor to the problem" (longislandsoundstudy.net).

LISS, CT Sea Grant and NY Sea Grant funded a study at University at Connecticut (2013-2015), based on the research of Dr. Vaudrey36. An interactive model was created that calculated the Total Nitrogen Load to each of the embayments in the Long Island Sound. The model calculates the Total Nitrogen Load at Stony Brook Harbor at 27,777 kg N/yr.

<u>Fertilizers</u>
Fertilizer use on the project site is currently applied to the turf (managed landscape) portion of the property that comprises approximately 6.8% of the site. Under proposed conditions, this managed area increases to approximately 12.2%. Fertilizer applications will comply with all applicable laws regarding timing and application rates. The application rate used in the following BURBS model follows Suffolk County's Best Management Practices (BMPs) of 2.0 lbs. N per 1,000 sf per year.

<u>Water Balance</u>
Based on water bills from November 2015 to November 2016 provided by representatives of Gyrodyne and the existing catering hall, the site currently utilizes an average of ±8,633 gallons per day:

- Gyrodyne (Lot 1) has 3 meters which measured 141,000 cubic feet utilized over the 12-month period from November 16, 2015 to November 16, 2016 (366 days, since 2016 was a Leap Year). This equates to an average rate of 385.25 cubic feet (cf) per day, or 2,882 gpd.
- Flowerfield caterer (Lot 2) has 4 meters, 3 of which are used; the fourth has no flow measured for this time period. The total flow measured 209,906 cubic feet utilized over the 9-month period from August 11, 2016 to May 11, 2017 (273 days). This equates to an average rate of 768.89 cubic feet per day, or 5,751 gpd.

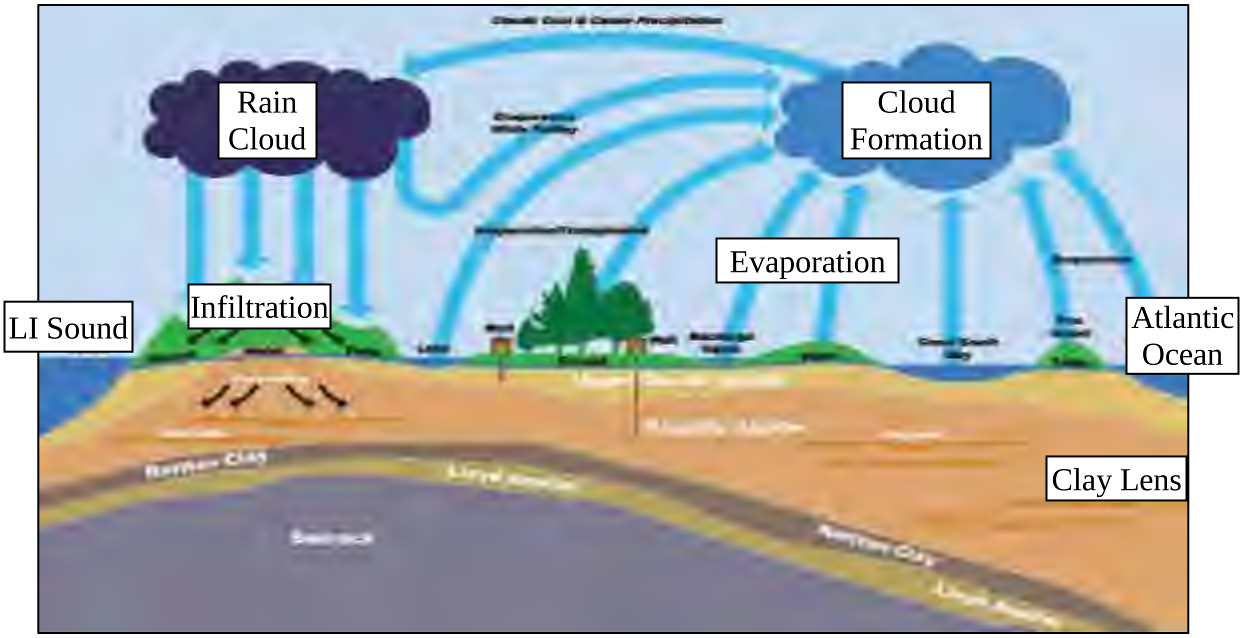
These values are lower than Suffolk County standard usage rates, therefore these values have not been used in the future allocation analysis.

Water balance describes the water cycle, which is the flow of water into and out of a system. Most, but not all, rain that falls eventually recharges the groundwater. Recharge losses are comprised of evapotranspiration and overland runoff:

Recharge (R) = Precipitation (P) – (Overland runoff + Evapotranspiration)

[36] Vaudrey, J. et al, *Nitrogen Loading to Long Island Sound Embayments, Comparative analysis and model development for determining the susceptibility to eutrophication of Long Island Sound embayments*, accessed via http://uconnclear.maps.arcgis.com/apps/webappviewer/index.html?id=aa59948c53f744b2ad2b9d2c0e170b71

Figure 7-6: The Water Cycle on Long Island[37]

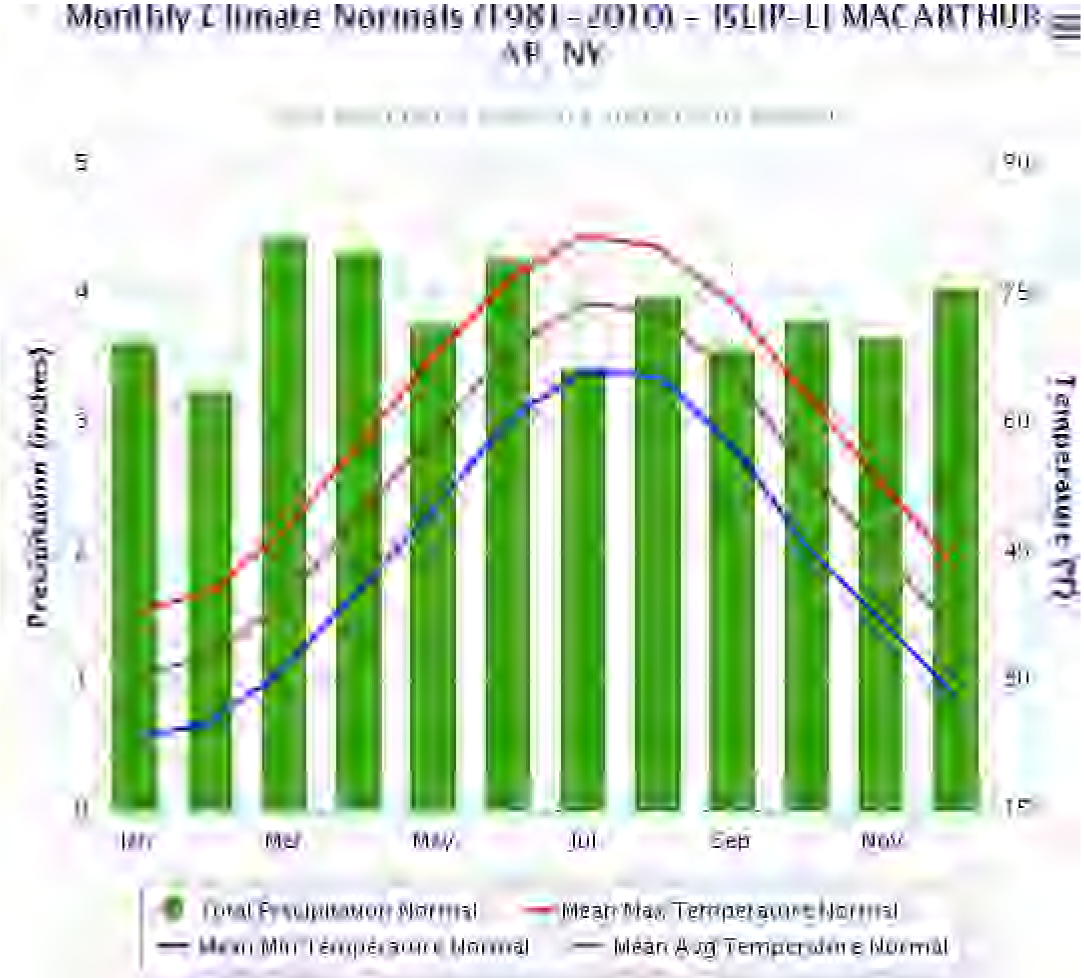


Water balance typically varies with the season. Positive water balance refers to when precipitation exceeds evaporation; it creates a water surplus when ground stores fill with water (resulting in increased surface runoff, higher discharge, and higher river levels). When evaporation exceeds precipitation, plants absorb water, ground stores are depleted, and it creates a water deficit.

As shown in Figure 7-7, precipitation is designated by the green bars and tends to peak in spring and early summer, with a lower peak in late fall/early winter.

[37] Suffolk County Water Authority *2018 Drinking Water Quality Report* for January 1, 2017 to December 31, 2017.

Figure 7-7: National Weather Service data for Islip Area, 1981-2010[38]



<u>Wastewater Treatment</u>

Wastewater discharge is regulated by Suffolk County Sanitary Code, Article 6[39], which permits single-family residential development in Zone VIII to have 600 gallons per day per acre. This is the equivalent of two single family residences per acre, based on the County's determination of 300 gallons per day per single family residence. The procedure for determining if the site requires additional wastewater treatment is accomplished by calculating the density load. Additional wastewater treatment would produce a lower total nitrogen concentration, maintaining groundwater integrity. If the density load of the proposed project exceeds the allowable density based on the site's area, additional wastewater treatment will be necessary. With a total project area of 74.98 acres, subtracting 2.02 acres of wetlands/pond, the density flow of 43,776 gallons per day (gpd) would be allowed with the use of a conventional on-site wastewater treatment system (OWTS).

[38] National Weather Service Forecast Office data accessed at http://w2.weather.gov/climate/xmacis.php?wfo=okx

[39] Suffolk County Sanitary Code Revised November 2011; Article 6: Realty Subdivisions, Developments, and Other Construction Projects, accessed via http://suffolkcountyny.gov/Departments/HealthServices/DocumentsandForms.aspx#dltop

In addition to density load, some structure uses also include a kitchen/gray load (ex. wastewater generated from food preparation and service areas, dishwashers, clothes washers). The total hydraulic load is calculated by adding the density load and the kitchen/gray load. Suffolk County has distinguished the difference between density load and total hydraulic load for structure uses typical to the area and they will add new values as needed. The required wastewater treatment system, whether a conventional OWTS or a Sewage Treatment Plant, is sized based on the total hydraulic load.

Regarding restaurants and/or food preparation establishments, Suffolk County requires pre-treatment of the kitchen/gray load in the form of a grease trap. The grease trap, when properly maintained, promotes the separation of fats and greases. It has been documented by NYS[40] that gray water (excluding the fats, oils and greases) typically has a low nitrogen concentration compared to a typical sanitary wastestream. This concept concurs with the Suffolk County Department of Health Services density load calculation. According to these sources, the majority, if not all the nitrogen loading is present in only the density load, not the kitchen/gray load. Therefore, when determining the nitrogen contribution from wastewater sources, only the density loads will be used in that calculation for on-site wastewater treatment systems (OWTS). As described in the Water Balance section, for this project (existing and proposed conditions), wastewater is recharged on-site. Therefore, while the kitchen/gray water flow is not part of the nitrogen contribution calculation for OWTS, it is part of the water recharge calculation.

As shown in Table 7-1 on the next page, the projected density flow is above the 43,776 gallons per day (gpd) threshold, requiring a sewage treatment plant (STP) to maintain groundwater integrity.

Using the required daily flow values for each subdivision use, the total projected density flow is 76,523 gallons per day (gpd) compared to 12,823 gpd associated with existing uses.

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[40] NYS Design Standards for Intermediate Sized Wastewater Treatment Systems, Page D-25 (see page J-35)

Table 7-1: Projected Wastewater Flow

Structure Use	Quantity/Size		Density Load Rate		Density Flow (gpd)	Kitchen/Gray Load Rate		Kitchen/Gray Flow (gpd)	Hydraulic Load/ Wastewater Flow (gpd)
Existing Uses									
Existing Industrial Park									
Industrial (no process water)	35,715	s.f.	0.04	gpd/s.f.	1,429				1,429
Retail (Wet Store w/ Food)	750	s.f.	0.03	gpd/s.f.	23	0.12	gpd/s.f.	90	113
Non-Medical Office	23,123	s.f.	0.06	gpd/s.f.	1,387				1,387
Medical Office	2,817	s.f.	0.10	gpd/s.f.	282				282
Fitness Center w/ showers (Over 5,000 S.F.) (no food service)	15,491	s.f.	0.10	gpd/s.f.	1,549	0.20	gpd/s.f.	3,098	4,647
Fitness Center (Under 5,000 S.F.) (no food service or showers)	3,469	s.f.	0.10	gpd/s.f.	347				347
School-shops and other vocational (50 s.f./occupant[1]=184 occupants)	9,175	s.f.	5.00	gpd/occupant	920	2.50	gpd/occupant	460	1,380
Exhibition Space-w/o mtg rooms (30 s.f./occupant[1]=71 occupants)	2,130	s.f.	0.03	gpd/s.f.	64	2.50	gpd/occupant	178	241
Occupy Existing Vacant Space									
50% Non-Medical Office	18,534	s.f.	0.06	gpd/s.f.	1,112				1,112
50% Industrial (no process water)	18,534	s.f.	0.04	gpd/s.f.	741				741
Existing Catering (874 seats)	874	seats	5.00	gpd/seat	4,370	2.50	gpd/seat	2,185	6,555
Single Family Homes on Existing Catering Lot	2	homes	300.00	gpd/home	600				600
Total Flow of Existing Uses (gpd)					**12,823**			**6,011**	**18,834**
Proposed Uses									
Hotel									
150 rooms (>400 s.f. gfa w/o kitchenette)	150	rooms	150.00	gpd/room	22,500				22,500
5,000 s.f. restaurant (150 seats)	150	seats	10.00	gpd/seat	1,500	20.00	gpd/seat	3,000	4,500
15,000 s.f. Conference Space (500 seats, no food service)	500	seats	3.00	gpd/seat	1,500				1,500
10,000 s.f. Day Spa/Fitness (w/showers, no food service)	10,000	s.f.	0.10	gpd/s.f.	1,000	0.20	gpd/s.f.	2,000	3,000
Tech/Medical Office	130,000	s.f.	0.10	gpd/s.f.	13,000				13,000
Assisted Living	220	beds	110.00	gpd/bed	24,200				24,200
Total Flow of Proposed Uses (gpd)					**63,700**			**5,000**	**68,700**
Total Flow (gpd):					**76,523**			**11,011**	**87,534**

[1] Table 1004.1.2 IBC 2015 https://codes.iccsafe.org/content/IBC2015/chapter-10-means-of-egress

Proposed Sewage Treatment Plant (STP) Siting

A sewage treatment plant (STP) would be provided in an enclosed building, in the location depicted in Figure 7-4, with an underground leaching field on the northeastern portion of Lot 9. Due to the STP's location in the 10-25 year groundwater travel time to surface waters, Stony Brook Harbor, the proposed 0.1 MGD STP will include nitrogen removal that reduces the STP's effluent nitrogen concentration to 7 mg/L, which is below the New York State groundwater discharge standard limit of 10 mg/L to adhere to SCDHS Guidance Memorandum #28[41]. A copy of this memorandum is included in Appendix J, starting on page J-17. This will reduce the amount of nitrogen loading to the groundwater which ultimately flows to Smithtown Bay as compared to existing conditions (see Section 7.3, Proposed Mitigation).

Within SCDHS Guidance Memorandum #28, the applicant must demonstrate the reduction of nitrogen mass loading by the proposed project as compared with the as-of-right mass loading that complies with the density requirements of Article 6 (as noted in the previous section of this report). The memorandum also directs the applicant to use the total nitrogen concentration of 50 mg/L when calculating the equivalent mass loadings. Below are the equivalent total nitrogen mass loadings for: existing, as-of right, and proposed conditions, calculated as per SCDHS Guidance Memorandum #28.

- *Existing Nitrogen Loading from wastewater (density loadings):*
  0.012823 MGD x 50 mg/L x 8.34[42] (conv. factor) = 5.35 lbs/day of Total Nitrogen
- *As-of-right Buildout Nitrogen Loading (OWTS):*
  0.043776 MGD x 50 mg/L x 8.34= 18.25 lbs/day of Total Nitrogen
- *Proposed Action Nitrogen Loading (Projected Flow-density loadings):*
  0.076523 MGD x 7 mg/L x 8.34 = 4.47 lbs/day of Total Nitrogen

This reduction of Total Nitrogen from "As of Right" Buildout compared to the Proposed Action is significant, ±76%. This comparison does not include additional downstream reductions in nitrogen as the treatment system's effluent enters the soil and as it traverses through groundwater. These additional reductions will be taken into consideration when discussing the project's nitrogen loading in its entirety, in the next section. There has also been recent research and analysis of existing on-site wastewater treatment systems (OWTS) to suggest the OWTS is less effective at removing nitrogen than once thought, which will also be discussed.

The proposed STP will maintain the required setback of the Suffolk County Department of Health Services (SCDHS). It will include adequate ventilation, with noise and odor control due to its proximity to off-site residential structures and to potential assisted living units on Lots 7 and 8. The proposed STP will be designed to meet or slightly exceed SCDHS and SCDPW design criteria and the design criteria set forth by Ten State's Standards

[41] Suffolk County Department of Health Services General Guidance Memorandum #28: Guidelines for Siting proposed or expanded Sewage Treatment Plants, July 2017. See Appendix J page J-14.
[42] A typical wastewater conversion rate of 8.34 has been applied to simplify the formula converting mg/L to lb/day or vice versa

(Recommended Standards for Wastewater Facilities). Additional design considerations for the proposed STP are detailed in Section 7.5 below on page 7-21.

The closest public drinking water wellfield is located greater than 1,500 feet to the southeast of the proposed STP and effluent discharge area and is operated by SCWA. This separation distance meets SCDHS requirements.[43] The proposed STP and effluent discharge are not located in the capture zone of this wellfield.

Since the project is located within an area where public water is available through the SCWA and the St. James Water District (see Appendix B, page B-36), the St. James Water District has indicated that there are no private drinking water wells in the area. The BB&GG Nursery located on Route 25A may have a private well that is used for irrigation purposes only, similar to the well on Gyrodyne's site (based on a phone call with Superintendent Nustad of the St. James Water District, June 2018, referenced in Appendix B, page B-35).

The applicant has requested confirmation from the Water District regarding water availability, shown in Appendix B, pages B-32 through B-34.

<u>Nitrogen Loading</u>
Cameron Engineering evaluated the expected nitrogen loading to groundwater for each Alternative, including under existing conditions (no subdivision, existing uses continue to utilize individual conventional on-site wastewater treatment systems, OWTS), and the proposed subdivision development, using the BURBS model. The BURBS model, developed at Cornell University by Hughes et al. (1985), is a computer simulation program that computes a development's potential impact on groundwater within a community due to nitrogen. The below BURBS computations depict the existing conditions and the proposed action.

The BURBS model predicts an estimate of nitrogen recharged to groundwater while it calculates loadings from wastewater, turf, natural land, atmospheric deposition, and runoff from impervious surfaces. Aspects of the BURBS model have been updated, as there has been continued research and development in these areas. The entire analysis is in Appendix J (starting on page J-1) and is summarized in this section.

The BURBS model predicts nitrogen leached to groundwater independent of land area (pounds of Nitrogen per acre per year). Multiplying each component by the corresponding acreage yields the calculated "pounds of nitrogen per year." The parameters/assumptions used in the BURBS model include:

1. Fraction of land in turf (maintained lawn)
2. Fraction of land which is impervious (roofs, driveways, roads)
3. Wastewater Amount (Density load for Alternatives with OWTS or STP Capacity for Alternatives with proposed STP, as calculated with SCDHS values)

3a. Wastewater Amount-Kitchen/Graywater (for Alternatives with OWTS, as calculated with SCDHS values)

[43] Suffolk County Department of Health Services General Guidance Memorandum #28: Guidelines for Siting proposed or expanded Sewage Treatment Plants, July 2017.

4. Precipitation rate (annual average in inches: 49.90 inches/year based on NOAA yearly precipitation quantities in Brookhaven, Long Island)
5. Irrigation rate (inches on turf land only, 400 gallons per minute, one inch per week, for 16 weeks, yielding 16 inches/year)
6. Water recharged from turf (39.92 inches per year, using Evapotranspiration Rate (ET) of 25.98 inches measured at LaGuardia Airport (LGA) and including irrigation of 16 inches per year[44])
7. Water recharged from natural land (23.92 inches per year)
8. Evaporation from impervious surface (10%)
9. Runoff from impervious recharged (90%)
10. Home water use per person (100 gallons)[45]
11. Nitrogen concentration in precipitation (0.86 mg/L)[46]
12. Nitrogen concentration in water used (4.65 mg/L)[47]
13. Turf fertilization rate (2.0 pounds Nitrogen/1,000 s.f. of turf)
14. Fraction of nitrogen leached from turf (35%)[48]
15. Fraction of wastewater nitrogen lost as lost as it traverses through groundwater[49] (10%)
16. Wastewater fraction removed by STP or OWTS including leaching pools-nitrogen concentration (10% for OWTS[50]; 90% with STP)[51]

16a: Wastewater fraction removed by sewer-quantity (0% existing and proposed, recharge for both remains on-site)

17. Nitrogen per person per year in wastewater for residential only developments (average of 9.25 lbs./person/day)[52]

17a. Nitrogen concentration in influent wastewater for mixed-use developments (65 mg/l)[53]

18. Nitrogen removal rate of natural land (90%)

Under existing conditions, the existing buildings would remain and would continue to use conventional on-site wastewater systems comprised of septic tanks with leaching pools. Natural land appears to be the largest contributor of water recharged with 48.4% and turf is the least at only 8%. This outcome corresponds with information provided by the Gyrodyne and their tenants regarding the area of managed turf. The vast majority of the undeveloped portion of the property does not receive fertilizer and is natural land.

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[44] ET rate at LGA airport
[45] Based on 10 States Standards
[46] Derived from the National Atmospheric Deposition Program NTN Site NY96 – Cedar Beach, Southold, NY.
[47] Suffolk County Water Authority (SCWA) 2018 Water Quality Report – Distribution Area 15, p.43.
[48] Recommendation for sandy soil if clippings are removed and based on Long Island studies & soil properties.
[49] Recommendation from Gobler at SUNY SOMAS, LINAP as described in 2017 report Quantifying Nitrogen Loading From Southampton Village to Surrounding Water Bodies and their Mitigation by Creating a Sewer District
[50] See BURBS Model-Wastewater Component Background Section
[51] STP Influent Total Nitrogen Concenration: 65 mg/L, STP Effluent Total Nitrogen Concentraion: 7 mg/L additional 10% removal in leaching pools=6.3 ((65 mg/L)-(6.3 mg/L))/(65 mg/L) = 0.90 = 90% removal
[52] US EPA: the range is 4.8 to 13.7 pounds of nitrogen per person per day; 9.25 is the average.
[53] Suffolk County design value for influent total nitrogen concentration for new sewage treatment plants in mixed use developments

The model also calculates wastewater as the main source of nitrogen recharge (83%). Throughout the time between the development of BURBS and present day, numerous studies have been conducted, specifically for Long Island, to determine the reduction rates within the septic tanks, within the leaching pools, and as groundwater traverses through the aquifer. The nitrogen removal efficiencies are based on the work performed by Dr. Christopher Gobler, PhD of the Stony Brook University Center for Clean Water Technology[54]. For these models a value of 58.5 mg/L was used for effluent concentration from the OWTS (septic tank and leaching pool), which calculates a 10% Total Nitrogen (TN) removal efficiency, based on an influent concentration of 65 mg/L. A 10% Total Nitrogen removal efficiency was used as additional reduction for nitrogen within the aquifer. The complete results for existing conditions are presented in Table 7-2 below.

Table 7-2: Existing Conditions BURBS Modeling Results

	Area	Water Recharged		Nitrogen Leached	
	acres	inches/year	Percent	lbs/acre/year	Percent
Turf	5.1	2.7	8.0%	2.7	8.2%
Natural Land	51.01	16.3	48.4%	0.7	2.1%
Wastewater	-	3.4	10.1%	27.4	83%
Impervious	18.87	11.3	33.5%	2.2	6.7%
Total:	74.98	33.7	100%	33.0	100%

The model calculated an average nitrogen concentration in recharge of 4.32 milligrams per liter and total nitrogen leached of 33.0 pounds per acre per year (2,474 lbs/yr). The amount of water recharged was calculated as 68.61 Million gallons per year (Mgal/yr).

7.2. Potential Impacts of Proposed Subdivision

Impacts to groundwater include those related to withdrawals and others related to infiltration. This project would result in increased withdrawal of groundwater. The project is located within the St. James Water District. Water consumption is estimated to be a maximum of 87,534 gallons per day (gpd), plus irrigation.

A letter requesting water availability was forwarded to the St. James Water District on May 23, 2017 and a letter received from the St. James Water District on June 18, 2018 (page B-36) indicates that the District has existing water mains on Route 25A (12-inch water main) and Mills Pond Road (8 and 12-inch water mains). The letter states that due to the presence of this existing infrastructure, a water main extension would not be necessary. A follow-up letter was sent on April 19, 2019 to confirm that the District has adequate capacity to serve the potable needs of the project (Appendix B: Correspondence pages B-32 through B-34).

One existing well on the property can be utilized for common area irrigation and dry-weather water level pond maintenance, as currently occurs. The irrigation system in the

[54] "Quantifying Nitrogen Loading from Southampton Village to Surrounding Water Bodies and Their Mitigation by Creating a Sewer District" February 2017, Christopher J. Gobler, PhD, Stony Brook University School of Marine and Atmospheric Sciences. See Appendix J page J-27.

common-owned Lot 9 would only operate seasonally (expected from May through August), and could be connected to moisture sensors so that the system would not be active during periods of rain.

The results of the BURBS nitrogen loading model for the proposed action indicates that the proposed subdivision's impervious runoff and wastewater would be the main sources of water recharge and wastewater would be the main source of nitrogen recharge. There is minimal nitrogen recharge from natural land, and a substantial increase of water recharge for wastewater. The subdivision includes a proposed on-site wastewater treatment plant (STP), described below in Sections 7.3 and 7.4, which includes STP discharge to leaching pools prior to the STP effluent traversing through groundwater. Even though the amount of water used and recharged will increase greatly with the proposed action, the proposed STP will decrease the nitrogen contribution.

Table 7-3: Proposed Conditions BURBS Modeling Results

	Area	Water Recharged		Nitrogen Leached	
	acres	inches/year	Percent	lbs/acre/year	Percent
Turf	9.13	4.9	9.1%	4.8	14.8%
Natural Land	30.01	9.6	17.8%	0.4	1.2%
Wastewater	-	17.9	33.2%	23.0	71.0%
Impervious	35.84	21.5	39.9%	4.2	13.0%
Total:	74.98	53.9	100%	32.4	100%

The model calculated an average nitrogen concentration in recharge of 2.65 milligrams per liter and total nitrogen leached of 32.4 pounds per acre per year (2,429 lbs/yr). The amount of water recharged was calculated as 109.73 million gallons per year (Mgal/yr).

The nitrogen contributions under existing and proposed conditions, 33.0 and 32.4 lbs/acre/year respectively, equal 1,122 and 1,102 kg/yr, respectively. As compared to the Univerity of Connecticut (UCONN) model results for Stony Brook Harbor (27,777 kg N/yr)[36], this site represents approximately 4% of the nitrogen contribution under the existing and the proposed conditions.

Table 7-4: Summary of BURBS Modeling Results for all Alternatives - Nitrogen Contribution

Nitrogen Contribution lbs/acre/year	Existing	Proposed Action	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8	Alt. 9	Alt. 10
Turf	2.7	4.8	4.2	4.2	4.1	3.6	4.7	3.2	4.8	4.8	4.8	5.4
Natural Land	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.6	0.4	0.4	0.4	0.4
Wastewater	27.4	23.0	23.0	23.0	23.0	79.6	60.1	27.4	23.0	23.0	39.4	23.0
Impervious Runoff	2.2	4.2	4.1	4.1	4.2	4.0	4.2	2.2	4.1	4.2	4.2	4.2
Total	33.0	32.4	31.7	31.7	31.7	87.6	69.4	33.4	32.3	32.4	48.8	33.0

Figure 7-8: Summary of BURBS Modeling Results for All Alternatives - Nitrogen Contributions

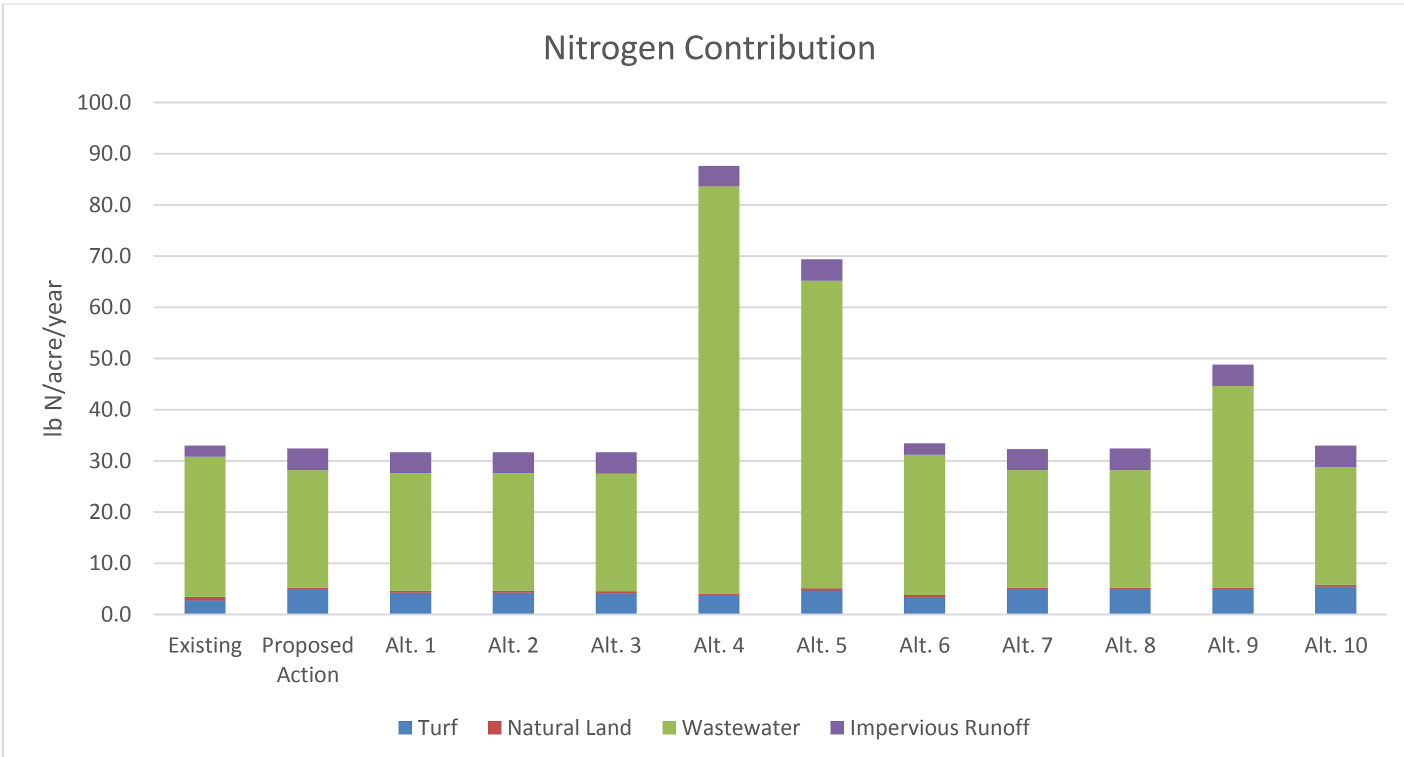
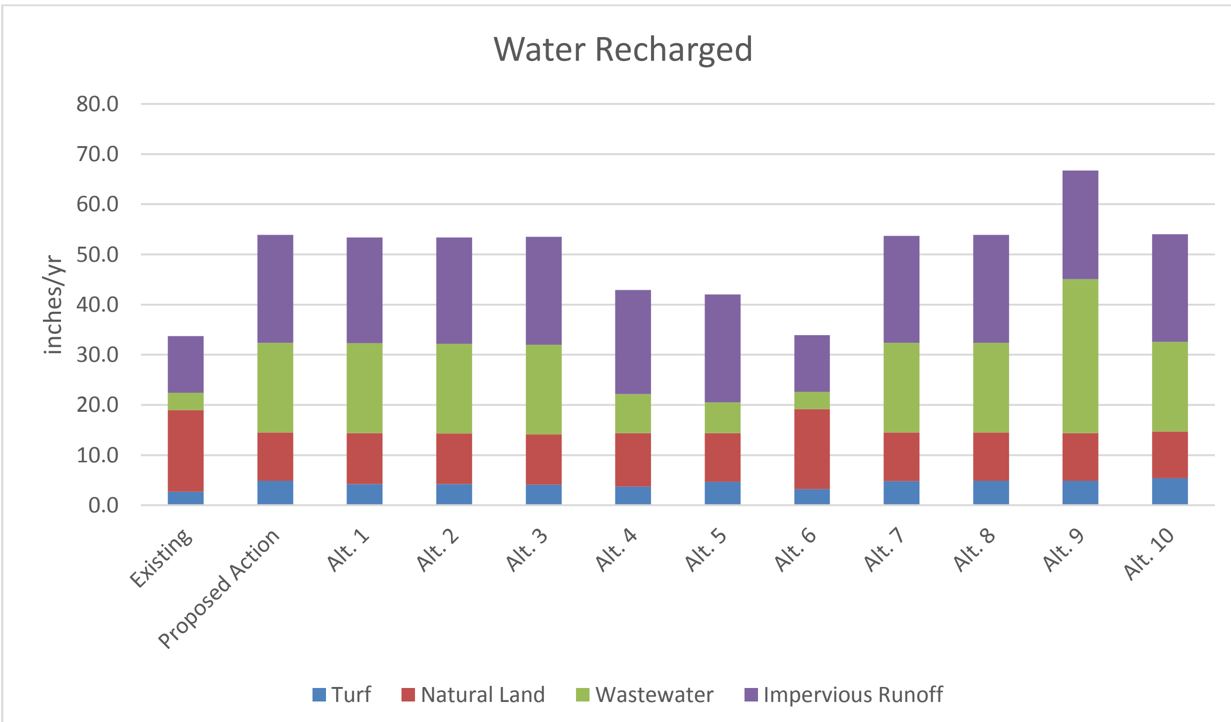


Table 7-5: Summary of BURBS Modeling Results for all Alternatives -Water Recharged

Water Recharged inches/year	Existing	Proposed Action	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8	Alt. 9	Alt. 10
Turf	2.7	4.9	4.2	4.2	4.1	3.7	4.7	3.2	4.8	4.9	4.9	5.4
Natural Land	16.3	9.6	10.2	10.1	10.0	10.7	9.7	16.0	9.7	9.6	9.5	9.3
Wastewater	3.4	17.9	17.9	17.9	17.9	7.8	6.1	3.4	17.9	17.9	30.7	17.9
Impervious Runoff	11.3	21.5	21.1	21.2	21.5	20.7	21.5	11.3	21.3	21.5	21.6	21.4
Total	33.7	53.9	53.4	53.4	53.5	42.9	42.0	33.9	53.7	53.9	66.7	54.0

Figure 7-9: Summary of BURBS Modeling Results for All Alternatives - Nitrogen Contributions



7.3. Proposed Mitigation

Potential impacts can be prevented/mitigated by reducing water demand and through stormwater treatment and filtration. The subdivision elements include the conservation of natural land, the incorporation of vegetated roadside swales to act as plant uptake and filtration, and a central landscaped island integrated in the cul-de-sac. Conserving natural land minimized the area to which fertilizer would be applied.

Water conservation methods would reduce consumption of public water. On-site groundwater withdrawals would be limited to irrigation. The irrigation system would be tied to moisture sensors and limited to the early morning to reduce unnecessary water consumption caused by evaporation losses. Wherever possible, areas of the property would be planted with drought-tolerant plants that require minimal or no irrigation.

Stormwater would be efficiently managed to maximize treatment prior to recharge. The stormwater management plan is designed to collect and recharge 100% of site runoff from a 5-inch storm. The stormwater management plan is described in detail in Section 8.3.

With the proposed subdivision in place, the proposed STP represents an improvement for the wastewater Total Nitrogen (TN) component as compared to existing conditions and the "As of Right" alternative.

7.4. Wastewater Collection System

Wastewater will be conveyed through a gravity collection system of plastic pipe with manholes designed in accordance with Suffolk County and Ten States' Standards requirements. Grease traps and lint traps will be installed as pretreatment prior to the gravity collection system where required and maintained by the appropriate entity. The majority of the existing buildings will be connected by gravity from their existing house connections. One exception will be the Flowerfield caterers which will require a pump station and force main to transfer their wastewater to the gravity portion of the sewage collection system. The pump station and force main design will be designed and approved by Suffolk County. The pump station will be located within the existing parking lot for the catering facility. The majority of the pump station is located underground with only the electrical appurtenances aboveground. The force main will discharge into the gravity collection system which ultimately reaches the influent pump station located adjacent to the STP. The influent pump station will be equipped with a non-clog style pump in lieu of chopper pumps. Chopper pumps reduce the size of solids in raw wastewater. Components of the size reduced wastewater include rags and non-dispersable materials (inorganic material) that tend reform downstream into larger deposits and "quilts". These "quilts" end up causing problems with pumps, valves, aeration tank diffusers and other the downstream process units. Increased maintenance and poor treatment performance can result.

7.5. Sewage Treatment Plant (STP) Additional Design Considerations

Future Regulations

While Suffolk County is currently underway generating a County-wide Subwatersheds Wastewater Management Plan (SC SWMP), final documents, data, modelling results and recommendations are not available in final form. In the preliminary documents available to the public, it appears that Gyrodyne's site will be included in the subwatershed for the Stony Brook Harbor/Smithtown Bay area. Once completed, the Plan will:
"develop its recommendations through a sequenced, technical based, approach using groundwater modeling to establish subwatershed boundaries for all of the County's priority waterbodies, nitrogen load modeling to estimate nitrogen loads to each subwatershed, surface water modeling to estimate surface water residence times, and the evaluation of existing water quality. The modeling results and water quality data will then be used to establish 'priority areas' for nitrogen reduction and to establish nitrogen load reduction goals for each priority area. Recommended wastewater upgrade alternatives capable of meeting the nitrogen load reduction goals that are established in the SC SWMP will then be evaluated using cost-benefit techniques."[55]

The ultimate waste allocation to Stony Brook Harbor should be reflective of the final Subwatersheds Management Plan results and may be applied to Gyrodyne STP in the future. As per Suffolk County Department of Health Services (SCDHS) requirements, 100% expansion area is reserved for expansion and/or replacement of the proposed sewage treatment facility and associated required effluent disposal facilities. This expansion area adjacent to the existing STP building could be available for additional treatment (if required) that could be designed to meet the nitrogen load reduction goals determined via the Suffolk County Subwatersheds Management Plan.

Proposed Suffolk County St. James Sewer District
There have been discussions with the Town of Smithtown regarding the ability of Gyrodyne to accept sewage flow from an area outside of Flowerfield's boundaries (St. James Business District/Lake Avenue) for treatment and disposal. As the projected flow from the proposed action is approximately 87,534 gpd, there would be an initial 12,466 gpd of excess capacity.

The proposed sewer district flow is estimated at 69,600 gallons per day, for a total flow of 157,134 gallons per day. Adding 8.5% to this value (for a cushion) results in a projected flow of 170,813 gallons per day. This value would be rounded up to 171,000 gallons per day. A preliminary engineering spatial evaluation of the current STP layout and associated leaching area could be expanded to 171,000 gpd to accommodate the St. James Busines District/Lake Avenue sewage flow. This is discussed further in the Alternative 9 assessment.

Architecture
Architecturally, the STP building will be CMU block construction and approximately 18' above grade. Final finishes will be determined by the owner during final design. The intent is to have the STP building architecture to reflect the styles and form typical of the

[55] Final Scoping Document GEIS Suffolk County Subwatersheds Wastewater Management Plan, February 2017

St. James area. Based on the proposed location and height of the STP, it is not anticipated to result in any visual impacts to the neighboring uses or those travelling on Route 25A.

Treatment Process

The treatment process will include headworks and flow equalization as well as primary, secondary, and tertiary treatment. This level of treatment will be achieved through the implementation of screens, Sequencing Batch Reactors (SBR), and disk filters. The Ultrascreen disk filter will achieve a higher quality effluent, which will be recharged to groundwater through a leaching field adjacent to the STP. As shown in Figure 7-4 above, the groundwater travel time on the eastern portion of the Gyrodyne site is less than 25 years. Since this is the area of the STP's effluent discharge, the STP will be designed to meet a lower total nitrogen effluent concentration of 7 mg/L on an annual average (typically the permitted sub-surface discharge limit for Total Nitrogen (TN) is 10 mg/L). The SBR technology is a familiar technology to Suffolk County and is capable of producing high quality effluent, specifically targeting low Total Nitrogen requirements. Also, the SBR manufacturer has designed the treatment process specific to meeting the TN goal of 7 mg/L at the STP building effluent discharge. An effluent Total Nitrogen concentration of 7 mg/L has been achieved at numerous wastewater treatment plants throughout Suffolk County. Referring to the 2016 SCDHS STP Report, published by Suffolk County, the technology to meet the 7 mg/L is available and effectively functioning throughout the County.[56]

"The average Total Nitrogen of all the 161 year-round tertiary facilities that were considered low risk was 5.3 mg/l. The average Total Nitrogen for all the 171 tertiary plants including the "high risk" and the seasonal plants in steady state was 5.95 mg/l. The average Total Nitrogen of all the 178 tertiary facilities including those NISS was 6.25 mg/l…The plants utilizing newer technologies such as SBR, modular aeration, BESST, and MBR have been showing steady performance and increased efficiency in treating wastewater compared to the older tertiary plants."

The STP will be operated and maintained by a contracted entity that must meet the effluent discharge limits and perform all normal operations and maintenance and emergency work.

Medical Waste

Since the subdivision includes assisted living units and medical offices, wastewater associated with these uses may present waste loadings that slightly differ from the other uses at the site. The assisted living facility and medical offices will follow applicable standards/protocols and relates to the relevant regulations of the NYSDOH and New York State Department of Transportation (NYSDOT, regarding transport of various types of wastes). These include, but are not limited to, Infectious (Regulated Medical) Wastes, Disposal of Sharps and Physical Hazard Wastes, Disposal of Chemical Wastes and Chemotherapeutic Wastes. Following these standards/protocols will limit most (if not all) of these wastes from contributing to the STP.

Source separation of adult diapers and wipes is the best management practice for these wastes. Requiring the facilities to remove wipes from their bathrooms and disposing of

[56] Office of Wastewater Management Report on the Sewage Treatment Plants of Suffolk County 2016 Performance Evaluation (https://suffolkcountyny.gov/Departments/Health-Services/WWM/WWM-Documents-and-Forms)

diapers and wipes with the solid waste is the best way to ensure they do not enter the wastewater. However, 100% compliance in this area is unlikely. Should these items enter the wastewater, the STP will be equipped with screening at the head of the plant to remove and bag them to be disposed of with the solid waste.

Pharmaceuticals

Pharmaceuticals that pass through the human body and enter wastewater have already been filtered by the kidney. The size and structure (chemical charge) of these pharmaceuticals present a challenge for removal from water. Pharmaceuticals in drinking water and wastewater-for-reuse employ several different filters and treatments to remove these harmful contaminants. These systems use multiple filters in series, to ensure the safety of drinking water. Wastewater standards, regarding the removal of these contaminants is not concurrent with drinking water standards. The effectiveness of the removal of pharmaceuticals in sewage treatment plants varies between different treatment processes as well as different pharmaceuticals. A treatment plant for the manufacturing of pharmaceuticals could be designed to target specifically those chemicals in certain physical states. The World Health Organization has conducted extensive literature reviews and concluded that the activated sludge process, similar to the proposed STP at this project, has a removal range of 11-99% for pharmaceuticals. The waste product of the activated sludge process is a thick sludge (biosolids) that harbors some of these contaminants. In this case the biosolids will be removed for the Gyrodyne facility and processed at a facility off-site (likely Suffolk County's Bergen Point facility). The proposed STP process will have a 30-day sludge age which will promote the degradation of certain pharmaceuticals.

As previously stated above, a 100% expansion area adjacent to the existing STP building will be available for additional treatment that could be designed to meet additional reduction goals, if required or install new technologies should they become available for treating pollutants of concern.

BURBS Model-Wastewater Component Background

Gyrodyne has prepared model runs (BURBS) for each of the potential alternatives put forth in this document. The BURBS model runs are included in Appendix J, starting on page J-1. BURBS model nitrogen loading from the time it enters either an on-site wastewater treatment system (OWTS) or a wastewater/sewage treatment plant (STP) and ultimately is discharged from the respective treatment system's last treatment unit. In this case, the last unit the wastewater enters can be the cesspool or a leaching pool. Downstream of either of these units is the soil followed by groundwater.

To provide some clarity on the nitrogen issue, information and guidance from regulatory agencies, scientific and peer-reviewed articles, and data from operating facilities were reviewed and analyzed. The information was categorized, and the value or factor was provided with the resource (email, article, technical paper, guidance document, etc.) that support the approach. As there is variation due to uncertainty and a lack of documentation within the scientific community on some of the values, the lower and upper ranges for nitrogen loading are given to provide the reviewer with a sense of the potential magnitude of the calculation.

The order of the discussion will be on influent nitrogen concentration in wastewater, followed by on-site wastewater treatment system (OWTS) removal performance, STP performance and lastly fate of nitrogen in soil and groundwater.

Influent Nitrogen Concentration

Influent nitrogen concentration is comprised of organic nitrogen, ammonia nitrogen, nitrite nitrogen and nitrate nitrogen. Suffolk County Department of Health Services and Suffolk County Department of Public Works both use a design factor (concentration) for wastewater treatment plants for influent total nitrogen concentration of 65 mg/L[57]. This concentration has been used for analyzing existing on-site wastewater treatment systems (OWTS) as well as for the influent design value for the new STP.

On-Site Wastewater Treatment System (OWTS) Removal Performance

There is much debate as to the efficacy of on-site wastewater treatment systems (OWTS) to reduce nitrogen. First it is important to discuss the components of an on-site wastewater treatment system (OWTS). As the Gyrodyne project is located in Suffolk County, it is important to note that approximately 76% of the County's population's wastewater is managed by on-site wastewater treatment systems (OWTS). On-site wastewater treatment systems (OWTS) installed prior to 1973 consist of cesspools with additional leaching pools added as the main cesspool leaching decreased. In 1973, the Suffolk County Department of Health Services enacted regulations that required the use of septic tanks for receipt of raw wastewater with downstream leaching pools in an amount commensurate with the flow. Cesspools have decidedly lower performance than septic tanks as in cesspools there is no separation of the solids from the liquid that exits the tank through its perforated sidewalls. The septic tank is a solid walled tank that is designed to settle solids and capture floatable materials (fats, oils and greases) while allowing effluent to continue downstream to leach out the sidewalls of the perforated leaching rings comprising the standard leaching pool. It is estimated that there is a greater quantity of cesspools than septic tanks within the County.

The Suffolk County Department of Health Services (SCDHS) has issued *General Guidance Memorandum #28 "Guidelines for Siting Proposed or Expanded Sewage Treatment Plants"* issued on July 24, 2017 (Reference No. 2 on page J-17) that provides guidance to design engineers and is an update and replacement to the Department's General Guidance Memorandum #1 – "Guidelines for Siting Sewage Treatment Plants and Other Disposal Systems" issued June 29, 2009. This document (page J-19) directs engineers to demonstrate that the mass nitrogen loading is reduced in comparison to a development that would comply with the Department's density requirements of Article 6 of the Sanitary Code. A designer is directed to use a Total Nitrogen (TN) concentration of 50 mg/L for such a comparison. The location of this Total Nitrogen concentration is at the point of discharge, prior to the effluent being dispersed into leaching pool and surrounding soil. Therefore, for a septic tank, leaching pool system, this concentration is after the septic tank prior to leaching structures.

[57] Suffolk County Department of Public Works – Division of Sanitation, "Non-Capital Project Design and Review Guidelines", February 10th, 2017. See Reference No. 1 on page J-14.

The New York State Department of Environmental Conservation (NYSDEC) sponsored a grant for Suffolk County Department of Health Services, the University of Stony Brook and the NYS Center for Clean Water Technology (CCWT) to conduct an extensive review of the County's Innovative/Alternative (I/A) OWTS program. The final report entitled "*2017 Annual Technology Review of Innovative/Alternative OWTS"* was published in December 2018 (Reference No. 3A, see page J-22). This grant allowed the Suffolk County Department of Health Services (SCDHS) and Center for Clean Water Technology (CCWT) to collect almost 200 samples from more than thirty-six (36) Innovative/Alternative (I/A) wastewater treatment systems. It was noted in this document that the average concentration of Total Nitrogen in a conventional on-site wastewater treatment system (OWTS) is 65 mg/L. This value was further confirmed in an *e-mail from Mr. Justin Jobin, Environmental Projects Coordinator dated January 14, 2019* (Reference No. 3B on page J-25) confirming that a typical on-site wastewater treatment system (OWTS) effluent concentration for Total Nitrogen is 65 mg/L and furthermore that both the United States Environmental Protection Agency (USEPA) and the University of Rhode Island OWTS Center (Mr. George Loomis-Director) use the 65 mg/L concentration for effluent Total Nitrogen from an OWTS.

Considering possible further reductions of Total Nitrogen downstream of the on-site wastewater treatment systems (OWTS), the Total Nitrogen loadings were assessed from the on-site wastewater treatment systems (OWTS) using both the SCDHS value of 50 mg/L (lower range) and the Center for Clean Water Technology (CCWT) value of 65 mg/L (upper range) Total Nitrogen (TN) concentration under several scenarios:

1. Existing Conditions at Gyrodyne (Density Flow Only)
   12,823 gallons per day @ 50 mg/L = 5.35 lbs. per day TN (lower range)
   12,823 gallons per day @ 65 mg/L = 6.95 lbs. per day TN (upper range)
2. As of Right build out – compliance with SCDHS Article 6, Commercial Standards
   72.96 acres @ 600 gallons per day per acre = 43,776 gallons per day allowance
   43,776 gallons per day @ 50 mg/L = 18.25 lbs. per day TN (lower range)
   43,776 gallons per day @ 65 mg/L = 23.73 lbs. per day TN (upper range)

Dr. Christopher Gobler, Director of the Center for Clean Water Technology, has performed extensive sampling, testing and modelling on the fate of nitrogen as it moves through each phase: on-site wastewater treatment system (OWTS), soil and groundwater. Additionally, he has worked with the Long Island Nitrogen Action Plan and has determined that additional reduction of Total Nitrogen after discharge from the on-site wastewater treatment system is on the order of 5-10% in each phase and not the 35% originally predicted in the Nitrogen Loading Model developed by Bowen, et al. 2007[58]. Based on discussions with the Lead Agency, the BURBS model with respect to nitrogen reduction once discharged from the septic tank uses Dr. Gobler's upper range of 10% for each phase downstream of the septic tank's discharge.

[58] Bowen, J. L., Ramstack, J. M., Mazzilli, S., & Valiela, I. (2007). NLOAD: an interactive, web-based modeling tool for nitrogen management in estuaries. Ecological Applications, 17(sp5), S17-S30

Calculations for additional Total Nitrogen (TN) reduction from the effluent discharged from the OWTS are as follows:

1. Existing Conditions (see prior calculations)
   a. Lower range of 5.35 lbs. per day TN reduced 10% in soil[54] = 4.82 lbs. per day reduced an additional 10% in groundwater[54] = 4.34 lbs. per day total TN
   b. Upper range of 6.95 lbs. per day TN reduced 10% in soil[54] = 6.26 lbs. per day reduced an additional 10% in groundwater[54] = 5.63 lbs. per day total TN
2. As of Right (see prior calculations)
   a. Lower range of 18.25 lbs. per day TN reduced 10% in soil[54] = 16.43 lbs. reduced an additional 10% in groundwater[54] = 14.79 lbs. per day TN
   b. Upper range of 23.73 lbs. per day TN reduced 10% in soil[54] = 21.36 lbs. reduced an additional 10% in groundwater[54] = 19.22 lbs. per day TN

<u>Wastewater/Sewage Treatment Plant Performance</u>

As Gyrodyne is not seeking an "As of Right" development in accordance with Article 6 SCDHS yield requirements limiting the flow to a maximum of 43,776 gallons per day, it is necessary to compare the discharge of Total Nitrogen from the proposed STP to that of the discharge of Total Nitrogen from the "As of Right" alternative. There has been much discussion on what value should be used for the Total Nitrogen of the effluent from the STP. Gyrodyne has anticipated the issuance of a SPDES permit having an effluent limitation for Total Nitrogen of less than 10 mg/L (10 mg/L is the current NYS Groundwater Discharge Standard). When discussing the likely effluent permit limitations of the Gyrodyne Sewage Treatment Plant with Suffolk County Department of Health Services (SCDHS), they have indicated that the formal review of the Gyrodyne subdivision will include the review of the project per Guidance Document #28 (page 3 of 4) that states under the Surface Waters category, *"The siting of STP discharges within the 0-25 year groundwater contributing areas to sensitive surface waters should be minimized to the extent feasible. However, when a STP is located within this travel time, the applicant shall provide an advanced treatment process that consistently reduces the total nitrogen concentration to the maximum extent practical. Also, SPDES permit conditions issued for these systems shall require the nitrogen goal to be significantly lower than 10 mg/L."*

Gyrodyne has selected a technology (Sequence Batch Reactor) with tertiary treatment (filter) and a vendor that has more than forty (40) systems currently operating in Suffolk County. Suffolk County Department of Health Services regularly monitors the performance of the wastewater treatment plants that discharge to groundwater. *The last published report (November 2017) entitled "Office of Wastewater Management – Report on the Sewage Treatment Plants of Suffolk County 2016 Performance Evaluation", prepared by Adhya & Olsen (Reference No. 5 on page J-30)* who made the following statements in the Executive Summary:

- *"The average TN of all 161 year*-round *tertiary facilities considered low risk was 5.3 mg/L with a 98.77% compliance rate."*
- *"Average TN of all 171 tertiary STPs including high risk and seasonal plants in steady state was 5.95 mg/L with a 95.3% compliance rate."*

- *"Average TN of all 178 tertiary STPs including those not in steady state was 6.25 mg/L with a 93.26% compliance rate."*
- *"This is significantly below the 10 mg/L which is typical the requirement of the NYSDEC and SCDHS"*

It is clear from the SCDHS extensive data base that the available technologies are more than capable of achieving Total Nitrogen below the 10 mg/L threshold. Additionally, it is reasonably expected that due to the travel time of the Gyrodyne site to Stony Brook Harbor that the Department will adhere to SCDHS Memorandum #28 and will issue a Total Nitrogen effluent limitation of less than 10 mg/L. The following calculations provide insight of the Total Nitrogen (TN) in the discharge from the proposed Gyrodyne STP building.

1. Design capacity of 100,000 gallons per day:
   a. Using 7 mg/L, effluent TN is 5.84 lbs. per day (low range)
   b. Using 10 mg/L, effluent TN is 8.34 lbs. per day (high range)
2. Additional Total Nitrogen removals in soil and groundwater (use same as for OWTS)
   a. Lower Range = 5.84 lbs. per day TN reduced 10% in soil = 5.26 lbs. per day TN reduced by 10% groundwater = 4.73 lbs. per day TN
   b. Upper Range = 8.34 lbs. per day reduced 10% in soil = 7.51 lbs. per day TN reduced by 10% groundwater = 6.76 lbs. per day TN

<u>Additional Wastewater Flow from the St. James (Lake Avenue) Business District</u>

Alternative 9 includes the possibility of the proposed STP receiving additional wastewater from the proposed St. James (Lake Avenue) Business District. This additional wastewater flow is projected at 69,600 gallons per day by the Town's consultant (page 19-10, "Alternative 9 Assessment"). Pages 19-10 through 19-12 designate a wastewater flow allocation of 71,000 gallons per day to the Gyrodyne STP from the St. James (Lake Avenue) Business District.

Assessing the Total Nitrogen (TN) loading currently being discharged from the St. James (Lake Avenue) Business District's existing on-site wastewater treatment systems (OWTS):

1. Using Guidance Memorandum #28 concentration of 50 mg/L for OWTS discharge, the TN loading is 71,000 gpd @ 50 mg/L = 29.61 lbs. per day
2. Using Center for Clean Water Technology measured value of 65 mg/L, the TN loading is 71,000 gpd @ 65 mg/L = 38.49 lbs. per day.
3. Both of the above values do not include potential additional reductions of TN through soil and groundwater (10% each step)

Additional Total Nitrogen loading to the Gyrodyne site was calculated should the proposed STP accept and treat the sewage flow from the off-site St. James (Lake Avenue) Business District.

4. Lower range = 71,000 @ 7 mg/L = 4.14 lbs. per day TN
5. Upper range = 71,000 @ 10 mg/L = 5.92 lbs. per day TN

6. Both of the above values do not include potential reductions of Total Nitrogen of effluent after discharge and passing through soil and groundwater (10% each step).

Table 7-6: Summary of Wastewater TN Loadings (lb/day)

	Lower Range		**Upper Range**	
	At point of discharge	After reductions in soil and groundwater	At point of discharge	After reductions in soil and groundwater
As of Right	18.25	14.79	23.73	19.22
Proposed STP (100,000 gpd)	5.84	4.73	8.34	6.76
Additional Sewage from St. James (Lake Avenue) Business District (71,000 gpd)	4.14	3.35	5.92	4.80
Proposed STP with St. James (Lake Avenue) Business District sewage flow (171,000 gpd)	9.98	8.08	14.26	11.56

These iterations were performed to demonstrate to the Town the estimated Total Nitrogen loadings that use the most current guidance and testing results values for comparative purposes. The Town's final recommendation for the BURBS model was to use 65 mg/L as the Total Nitrogen concentration from septic tank effluent flow. It was also the Town's recommendation for the BURBS model to use a 10% removal rate for Total Nitrogen in soils and an additional 10% removal rate for Total Nitrogen as it traverses through groundwater. The Town also agreed to use 7 mg/L as the STP effluent concentration for Total Nitrogen for the BURBS model. Analyzing Total Nitrogen loadings with these values, the STP generates Total Nitrogen loadings well below the "As of Right" buildout even when accounting for acceptance of the off-site St. James (Lake Avenue) Business District wastewater flow.

8. Stormwater Collection, Treatment, and Recharge

8.1. Existing Conditions

The existing site contains both commercial and industrial buildings with large paved parking areas on Lot 1 and Lot 2, and large areas of vegetated open space throughout the rest of the site. The existing stormwater on-site is collected intermittently through drainage inlets and a positive drainage system which ultimately conveys all site runoff by pipe to the on-site pond in Lot 2.

8.2. Potential Impacts of Proposed Subdivision

The proposed subdivision will retain the existing buildings and the existing paved parking areas on Lot 1 and Lot 2.

The balance of the subdivision will increase additional impervious area with the introduction of a 30-foot wide, paved road for access to development lots, and a water reclamation plant with a vehicular access drive from NYS Route 25A. The future development of Lots 3 through 8 will ultimately increase impervious area with the introduction of new buildings and associated paved access and circulation drives, paved parking fields, and pedestrian sidewalks. However, there will also be the introduction of new stormwater management techniques incorporating green infrastructure practices as suggested in the *NYSDEC New York State Stormwater Management Design Manual* (January 2015) constructed within Lot 9 and along the proposed private roadways, and ultimately on Lots 3 through 8, where none exist today.

There will be five (5) overall tributary areas on the Flowerfield property:

1. There are two existing ponds on the site, located adjacent to each other along a roughly north-south axis, at the approximate center of the overall property. The two ponds are identified as NYSDEC mapped freshwater wetland ponds, with the wetland limit delineated by the toe-of-slope/edge-of-water interface, per NYSDEC biologist Daniel Lewis during his site visit on October 17, 2018. The existing on-site ponds are currently used for stormwater catchment. This system will remain in place for the collection of rainfall runoff. Field investigation and site topographic survey indicate that the ponds, though adjacent, are separate catchment areas, and are referred to here as 1.a and 1.b:
    a. The catering hall pond primarily receives stormwater runoff from the existing developed lot at the south end of the property, what is referred to as Lot 1 on the preliminary subdivision map. Under the proposed subdivision plan, the newly proposed roadway will cut through this tributary shed area. This will slightly reduce the area of existing pavement contributing runoff to the pond.
    b. The northerly pond receives surface runoff from the surrounding landscape and neighboring existing parking field to the east. Under the preliminary subdivision plan, this parking field is referred to as Lot 3 and a portion of the parking field will become a segment of the right-of-way. Due to the status of this pond as a designated State wetland, NYSDEC requires that the

pond, under the post-development site conditions, receives an equivalent volume of runoff as under the pre-development condition. Based on a hydrological analysis of the pre- and post-development stormwater flows to the wetland pond, under the post-development site condition, the stormwater runoff from much of the proposed right-of-way will be channeled through vegetated swales and pipes to the wetland pond. In the post-development drainage system, all of the runoff from the Road B and C right-of-ways will be conveyed to the wetland pond, along with approximately 1,500 feet of the Road A right-of-way.

2. The southern portion of Road A, running approximately 370 feet in length, will direct stormwater in vegetated open swales to a new drainage reserve area (DRA 3) at the southeast corner of Parkside Drive and Mills Pond Road. The vegetated open swales will be supplemented with drywells.
3. The northern portion of Road A, running approximately 560 feet in length, will direct stormwater in vegetated open swales to two new DRAs next to the proposed Route 25A site access. In addition to the roadway runoff, the two new DRAs will also receive any overflow from the wetland pond shed area, should a rainfall event deliver volumes exceeding the established high-water line for the wetland pond.
4. The proposed water reclamation plant located at the northern end of the property, along with new vehicular access drive to the plant from NYS Route 25A, will contribute new impervious coverage stormwater runoff. The anticipated additional runoff, based on an eight (8) inch storm event, will be captured by catch basins and conveyed to underground drywell structures to be infiltrated into the groundwater table.

The Cameron Engineering Preliminary Engineering Grading and Drainage Plans on Sheets C-2 through C-4 (pages M-3 through M-5 in Appendix M) indicate the proposed drainage design calculations and stormwater infrastructure. As planned, the system is designed to retain eight (8) inches of stormwater in roadway improvement areas, drainage reserve areas (DRAs), and in the northerly wetland pond. As described above, changes to the existing stormwater drainage pattern tributary to the southerly wetland pond are minimal. Per discussion, preliminary review, and with approval by the Town Engineer, preliminary drainage design utilizes drainage reserve areas to store five (5) inches of stormwater, and the three (3) remaining inches of the eight (8) inch design storm event will be stored in drywells in vegetated open swales along the roadside within the private right-of-way. In addition, per discussion with the NYSDEC (see Appendix B page B-2), stormwater runoff flow will be conveyed to the existing northerly wetland pond in sufficient volume and frequency, so as to match the pre-development flows to the pond.

As shown on the Preliminary Engineering Plans (starting on page M-1 in Appendix M), approximately 246,833 cubic feet of stormwater runoff volume would be generated by the 8-inch storm event within the tributary shed areas comprising the proposed site infrastructure improvements and the northerly NYSDEC regulated wetland. The post-development runoff will be contained within the existing northerly State designated wetland pond, within proposed drywells within the private right-of-way, and within the three new drainage reserve areas indicated on the plans. Approximately 137,026 cubic feet of the anticipated runoff volume will be conveyed to the State wetland pond, where 75,538 cubic feet of that amount will be retained. The surplus 61,488 cubic feet will enter an overflow structure to be constructed at the northwest corner of the pond, and conveyed through underground piping into the stormwater detention network within the tributary shed area of DRAs 1 and 2, combining with 69,940 cubic feet of stormwater runoff generated by that shed, for a total of 131,428 cubic feet, distributed between the drywells and drainage reserve areas. The 21,746 cubic feet of stormwater volume generated from the southerly portion of Road A will be contained within DRA 3. The 18,121 cubic feet of stormwater generated by the impervious cover due to the water reclamation plant will be contained within underground drywells.

The proposed stormwater management practices, combining vegetated open swales, drywells, and infiltration basins in the form of drainage reserve areas, work together to preserve natural resources, reduce impervious surface, and reduce runoff. The preliminary subdivision is designed to slow down the flow of runoff to increase the time of concentration over vegetative swales, promote infiltration and evapotranspiration, and improve groundwater recharge. These practices are also expected to reduce sedimentation and dissolved pollutants from reaching the ponds, which will protect the wetlands and provide water quality improvements.

The subdivision will also significantly increase active stormwater retention and leaching throughout the property.

8.3. Proposed Mitigation

The proposed preliminary drainage design is based on a desire to improve the quality of stormwater through natural, aesthetically pleasing on-site treatments which maximize on-site recharge. The subdivision had been planned using green infrastructure practices, incorporating the preservation of natural features and conservation, the reduction of impervious cover, and the reduction of runoff using green infrastructure techniques.

Preservation of natural features and conservation has been accomplished by planning new development in the less environmentally sensitive areas on the east side of the property, where land was cleared for farming purposes, preserving 200 to 300 feet of naturally vegetated space along NYS Route 25A, and a 100-foot wetland setback to the existing ponds. Clearing and grading for the preliminary subdivision is limited to the development of the private roads and drainage reserve areas. The proposed subdivision maintains approximately 36.5 acres of open space, 48.7% of the site.

Planning practices for reducing impervious cover on the site include the minimization of the roadway pavement width to 30 feet, from the standard 40-foot paved width. Sidewalks are not proposed for the subdivision, further reducing impervious cover. The cul-de-sac proposed on Road B has been designed with an interior, permeable landscaped island. Conceptual building footprints have been minimized by proposing multi-story buildings.

The green infrastructure techniques proposed for the preliminary subdivision were planned to utilize the natural features of the site to further runoff reduction. Existing topography, natural buffers, ponds and wetlands, and underlying granular soils provide natural characteristics which encourage the use of these techniques. Upon completion of the proposed subdivision and subsequent development, all runoff would be collected and recharged on-site. Only limited undisturbed perimeter areas would remain outside of the proposed drainage collection system area.

The subdivision plan was planned incorporating Best Management Practices (BMPs) based on the NYSDEC *New York State Stormwater Management Design Manual* to minimize surface runoff and maximize groundwater recharge. The subdivision incorporates vegetated, open, roadside swales to convey stormwater first to water quality treatment structures or drywells along the swale, and ultimately to the existing NYSDEC wetland pond or drainage reserve areas, respectively, for extended detention and infiltration of larger storm events. The vegetated swales will provide the initial pre-treatment of the surface runoff, and the treatment structures and drywells will provide treatment of the full water quality volume. Additional specific BMPs would be selected for future development of each individual lot during the commercial site plan application submission (post-subdivision approval). Lot development plans may include BMPs such as bioswales, rain gardens, porous pavements, tree plantings, and other infiltration practices. Therefore, the expectation is that the quality and quantity of stormwater runoff will be enhanced as a result of the proposed subdivision.

One of the major infiltration practices proposed is the construction of drainage reserve areas (DRAs) on the property to collect site drainage. The DRAs would receive runoff from within the private right-of-way, including additional front yard areas which are sloped toward the private right-of-way. The drainage from the proposed paved roadway area would first be directed to vegetated open swales adjacent to the pavement edge. The swale will slow down flow to increase the time of concentration promoting surface filtration through the swale vegetation, promote infiltration, and increase opportunity for evapotranspiration. Drywells positioned along the length of the swale will intercept the first 3 inches of stormwater, recharging the groundwater table. In a 100-year storm event, 8 inches of rain is estimated for this region of New York State in the *New York State Stormwater Management Design Manual*. If the proposed drywells were to fill after storing the runoff volume of 3 inches, the remaining 5 inches would continue to travel downstream toward the pond and ultimately toward the drainage reserve areas. The drywells nearest the low end of the roadway will include overflow pipes leading into the DRAs. The DRAs would then detain the runoff volume of any of the remaining 5 inches for an extended period of time, and recharge the stormwater over time, through the permeable granular bottom back to groundwater.

Additionally, the drainage reserve areas have excess drainage capacity to account for New York State climate change projections. NYSERDA has released an update to the 2011 ClimAID Climate Risk Information entitled *Climate Change in New York State: Updating the 2011 ClimAID Climate Risk Information* (2014 Update). Precipitation increases are projected out to the year 2100, and estimate a 0 to 20% increase in the percent of precipitation for the seven regions of New York State. The combined volumes of drainage reserve areas 1, 2 and 3, the wetland pond, and drywells within the private right-of-way, as currently proposed, provide an excess of 18,464 cubic feet of storage volume. DRA 3 has the ability to be enlarged in the future to provide an additional 28,697 cubic feet of storage volume, for a total of 47,161 cubic feet of excess storage volume, equivalent to an additional 1.53 inches of storm capacity above the 8 inches required. This is 19.1% above the current storm water design requirement, and targets the high-end projection of a 20% increase in precipitation made by New York State in the 2014 Update.

The subdivision drainage design will maximize stormwater recharge and infiltration. Stormwater collected in drywells would infiltrate through a 3-foot sand collar, filtering the stormwater before flowing through the surrounding soils and recharging the groundwater.

The quality of the stormwater discharged from the site would meet or exceed the requirements of the State Pollutant Discharge Elimination System (SPDES) General Permit for Construction Activities required for all projects of five (5) or more acres. The SPDES requires that "the release of stormwater runoff from development should not exceed predevelopment (natural) conditions…the site will generate no greater peak than prior to development for a 2-year, 10-year, and 100-year 24-hour storm considered individually. Attenuation of the 2-year frequency design storm is intended to achieve the stream channel erosion objective. Attenuation of the 10-year frequency design storm is intended to assure the adequacy of existing and proposed culverts and storm drain systems. Attenuation of the 100-year frequency design storm is intended to reduce the rate of runoff from development to prevent expansion of the 10-year floodplain so as to alleviate flooding of improved properties and roadways."[59]

In accordance with SPDES recommendations, priority is given to natural drainage systems. Overflow from the drainage collection system is conveyed to proposed drainage reserve areas. And, as required, the stormwater conveyance system is sized to accommodate a 100-year storm event and contains 8 inches of rainfall on-site.

Per SPDES, safe overland conveyance of flow from a 100-year storm is provided for. The proposed stormwater collection system follows SPDES order of preference; increase time of concentration, reduce peak discharge, increase infiltration, retention, and extended detention. Flow from impervious areas goes first to vegetated open channels, then into drywells, overflowing to the DRA's (retention) after storing 3 inches in drywells, and infiltrates through the granular bottom of the DRA, recharging the groundwater (extended detention and infiltration).

The existing paved parking areas in use for Lots 1 and 2 will be maintained. The existing drainage system is piped to the existing ponds, and provides the quantity of water needed to maintain current water levels. The quality of water being sent to the ponds, however, can be improved by filtration techniques and the drainage inlets, or just prior to discharge. Newly proposed components introduced to improve stormwater quality would be based on features recommended in publications such as "*Design of Stormwater Wetland Systems*[60]" and Best Management Practices recognized by the NYSDEC. Stormwater reaching the pond would be treated by these systems and incorporated into the drainage design. Emergent plants recommended for the pond would help treat stormwater by removing nutrients and settling fine solids with their associated contaminants. Bacteria in the pond bottom would break down nitrogen compounds and organic materials. The vegetation

[59] *General Permit for Construction Activities, Stormwater Guidelines for New Development.* New York State Department of Environmental Conservation, Technical and Operational Guidance Series 5.1.10

[60] *Design of Stormwater Wetland Systems* - Anacostia Restoration Team, Metropolitan Washington Council of Governments, October 1992.

would provide forage and cover for wildlife including fish, amphibians and birds. Mosquitofish would be stocked in the pond to consume insects including mosquito larvae.

The stormwater treatments described above in conjunction with the Grading and Drainage Plans (see Sheets M-3 through M-5 in Appendix M) and the future Erosion and Sediment Control Plan will constitute the Stormwater Pollution Prevention Plan.

9. Traffic

The following information is described in more detail in Appendix F: Traffic Impact Study.

9.1. Existing Conditions

The site is currently zoned LI and is partially developed by a mix of industrial-commercial uses, including Flowerfield Celebrations catering hall. Uses in the vicinity include single-family residential and Stony Brook University.

NYS Route 25A (North Country Road) on the north side of the property is a New York State Department of Transportation (NYSDOT) arterial with one lane in each direction. The Average Annual Daily Traffic (AADT) volume between Moriches Road and Stony Brook Road is ±17,300 vehicles per day ("vpd") and the speed limit is 45 mph.

Mills Pond Road on the west side of the property is a north-south Town of Smithtown collector with one lane in each direction and a 30 mph posted speed limit. It generally runs north-south between Route 25A and Moriches Road.

Stony Brook Road is a north-south Town of Brookhaven roadway with one lane in each direction and turn lanes at key intersections. The speed limit near the site is 30 mph.

Pedestrian Conditions
The predominant land uses on the site and in the immediate area are not the type of land uses that generally attract high numbers of pedestrians. In our experience, land uses that typically generate pedestrian activity include residential uses, schools, local retail in proximity to residential homes, and recreational uses such as parks and walking trails. The land uses on and near this site consist mainly of light industrial, storage, offices, and a catering hall, which in our experience typically draw vehicle traffic from a large area, and which do not typically generate significant numbers of pedestrians on a regular basis.

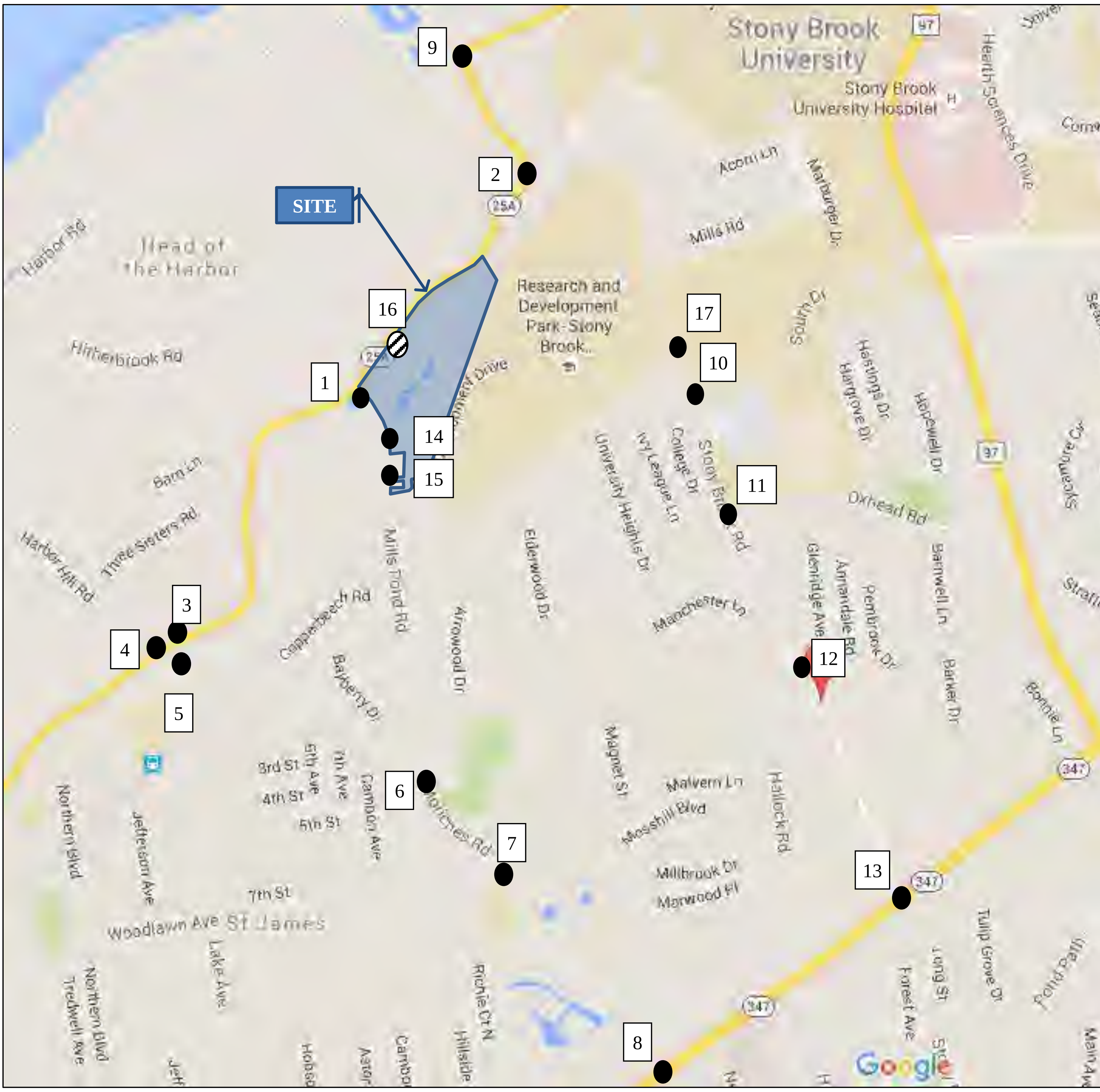
The roads that front the Flowerfield property (Route 25A and Mills Pond Road) do not have sidewalks. Additionally, observed pedestrian activity in the area has been fairly low.

Transit
Suffolk County Transit (SCT), which runs the local bus system, has no bus routes or stops within ½ mile of the property or its site driveways[61].

Study Intersections
The traffic study includes sixteen existing intersections and one proposed driveway. See the map and list in Figure 9-1 below.

[61] Suffolk County Transit System Map accessed at http://www.sct-bus.org/sctmap.html in April 2017

Figure 9-1: Study Intersections



KEY:

1. Route 25A at Mills Pond Road
2. Route 25A at Stony Brook Road
3. Route 25A at Lake Avenue
4. Route 25A at Moriches Road
5. Moriches Road at Lake Avenue
6. Moriches Road at Mills Pond Road
7. Moriches Road at Woodlawn Avenue
8. Route 347 at Moriches Road
9. Route 25A at Main Street
10. Stony Brook Road at South Drive
11. Stony Brook Road at Oxhead Road
12. Stony Brook Road at Hallock Road
13. Stony Brook Road at Route 347
14. Mills Pond Road Site Access 1
15. Mills Pond Road Site Access 2
16. Route 25A Site Access (future)
17. Stony Brook Road at Development Drive south of the LIRR (weekday only)

Traffic Counts and Adjustments
Traffic counts were collected in February 2017 at locations 1-15 during typical weekday AM (7:00-9:00), PM (4:00-6:00), and Saturday (11:00 a.m.-2:00 p.m.) peak periods. Select locations were also counted on weekdays until 10:00 a.m. and starting at 3:00 p.m.

The intersection of Stony Brook Road and Development Drive was added to the scope at a later date, so it was counted on Wednesday, March 30, 2018 from 7:00-9:00 a.m. and 4:00-6:00 p.m. It was not counted on a Saturday because the Research and Development Park buildings are closed on weekends.

The counted volumes were slightly increased to reflect an average month of the year. The traffic study refers to the adjusted volumes as the Existing Condition.

Level of Service / Delay
The Existing Condition volumes were used to calculate travel delays and "Levels of Service" (LOS). There are six Level of Service (LOS) grades: LOS A, B, C, D, E, and F. LOS A denotes the best traffic flow (minimal to no congestion); LOS grades B, C, D, and E denote increasing delay; and LOS F denotes the highest delays. The overall intersections range from LOS A to E during peak periods. Generally, most individual lane groups (such as "northbound right turn at Route 25A/Mills Pond Road") operate between LOS A and D, with some movements operating at LOS E or F in the current condition. See Table 3-3 of Appendix F.

9.2. Potential Impacts of Proposed Subdivision

Traffic Volumes
The future Year 2020 "No Build" volumes reflect the Existing volumes with three years of general ambient growth (a 3.3% increase), full occupancy in the existing industrial buildings, a near-peak guest count at the Flowerfield catering hall (based on events held over five years), and the proposed IDC at the Stony Brook Research and Development Park. The ambient growth rate of 1.1% per year was sourced from the NYSDOT Highway Data Services Bureau.

The Year 2020 "Build" scenario includes site-generated traffic, distributed throughout the local road network and added to the "No Build" volumes. Trip generation information is sourced from the ITE *Trip Generation* manual (10^{th} Edition). In Appendix F, this information is provided in Tables 6-3 and 6-4. In the main body of this DEIS, the trip generation data are summarized in Table 9-1 starting on page 9-5.

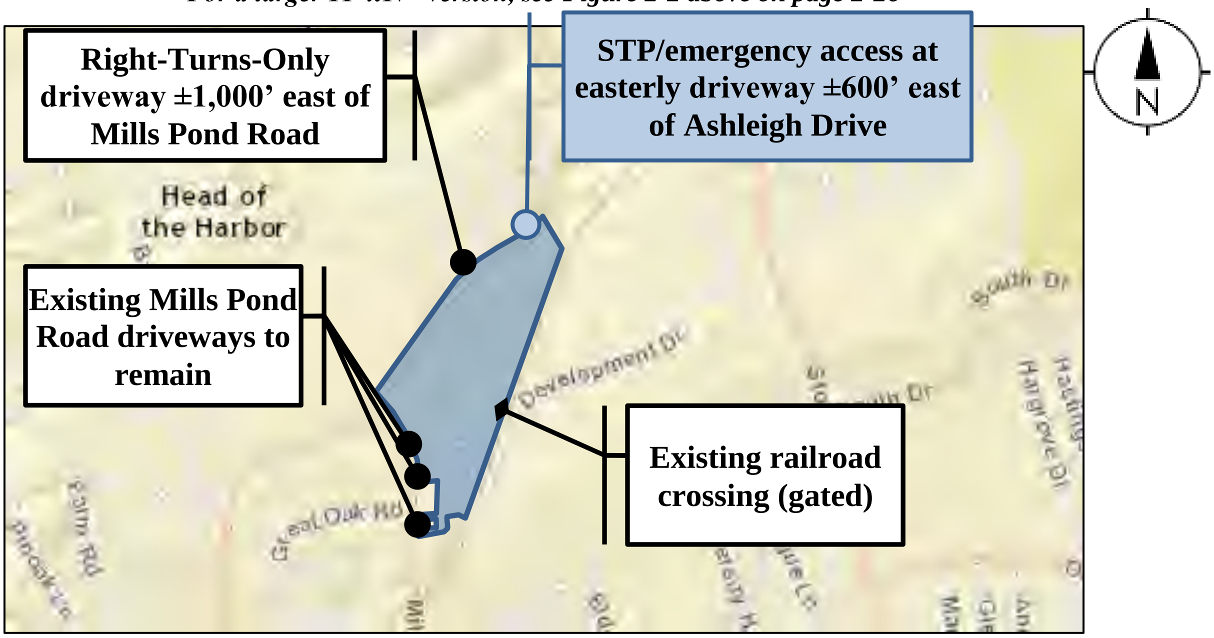
Site Access
The property would retain its existing driveways and curb cuts on Route 25A and Mills Pond Road. The center existing driveway on Mills Pond Road will remain a primary site access. The other primary site access is a proposed right-turns-only driveway on Route 25A approximately halfway along the Gyrodyne frontage. The new driveway would have a raised concrete island and appropriate signage to prevent errant left turns onto or off Route 25A, as directed by NYSDOT (most recently in July 2018).

The existing Route 25A access (about 600 feet east of Ashleigh Drive) will remain an unsignalized T-intersection. For the subdivision, this access will serve the on-site sewage treatment plant and can provide an additional emergency access.

The existing northerly Mills Pond Road driveway will continue to serve the Flowerfield Celebrations catering hall. The existing southernmost Mills Pond Road driveway will continue as a minor access to the existing buildings on Lot 1.

Figure 9-2: Site Access Schematic

For a larger 11"x17" version, see Figure 2-2 above on page 2-26



LIRR Grade Crossing
The existing railroad crossing between Gyrodyne and the Stony Brook R&D Park is fenced on both sides. Gyrodyne has been actively coordinating the re-opening of the railroad crossing. While significant progress has been made in this effort, including support from Stony Brook University, there is still a degree of uncertainty as to when this might be accomplished. Timing associated with LIRR and NYSDOT involvement and with one or more public hearings required to secure an approval results in an uncertain timeframe. Accordingly, Gyrodyne has modified the proposed Preliminary Subdivision Plan to clarify the railroad crossing as a "possible/future re-opening of railroad crossing". The updated Preliminary Subdivision Plan would not result in the re-opening the railroad crossing.

Section 1 (Alternatives) discusses the relative impacts if this crossing is possibly re-opened in the future (Alternative 8). The Appendix F: Traffic Impact Study includes a synopsis of potential daily crossing traffic and pedestrian/cyclist volumes, the existing condition of the crossing, and the improvements that may be required to re-open the crossing to traffic.

Internal Trips
The anticipated new land uses would have synergy with each other, to varying degrees, so some traffic (a nominal 5% for most uses, 20% between the hotel and catering hall) which would otherwise be generated off-site will remain as internal traffic within the property. The net new off-site generated traffic will be smaller than the total traffic as follows:

Table 9-1: Summary of Proposed Action Trip Generation

	AM Peak	PM Peak	Saturday Peak
Total Generated	357	538	323
Internal Generated	28	41	32
Off-site Generated	329	497	291

Level of Service / Delay

As shown in Table 7-1 starting on page 7-10 in Appendix F, most lane groups will operate at the same or similar LOS with or without the proposed subdivision. For the purposes of a traffic study, traffic impacts are denoted by significant delay increases, or by a LOS change that bring a movement to LOS F. Overall intersection LOS is summarized below. Six intersections warrant traffic mitigation, as further described in Section 0.

Table 9-2: Intersection Level of Service Summary

Key: No Build LOS / Build or Mitigated Build LOS

	AM Peak	PM Peak	Saturday Peak	Mitigation
Route 25A at Mills Pond Road	A / B	D / C	A / B	√
Route 25A at Stony Brook Road	C / B	C / C	A / A-B	√
Route 25A at Moriches Road	A / A	A / B	A / A	
Route 25A at Lake Avenue	B / B	B / C	A / A	
Lake Avenue at Moriches Road	A / A	A / A	A / A	
Moriches Road at Mills Pond-	A / B	C / C	B / C	
Moriches Road at Woodlawn	B / B	B / B	B / B	
Route 347 at Moriches Road/Smith Haven Mall	B / C	C / C	C / D	√
Route 25A at Main Street	B / B	C / C	B / B	
Stony Brook Road at South Drive	F / C	D / C	B / B	√
Stony Brook Road at Oxhead	B / C	F / B	A / B	√
Stony Brook Road at Hallock	A / A	B / B	A / A	
Route 347 at Stony Brook Road	E / E	E / E	E / E	√
Mills Pond Road Site Access 1	A / A	A / A	A / A	
Mills Pond Road Site Access 2	A / A	A / A	A / A	
NYS Route 25A Site Access	A / A	A / A	A / A	
Stony Brook Road at	A / A	A / A		

Complete Streets / Bicycle Accommodations

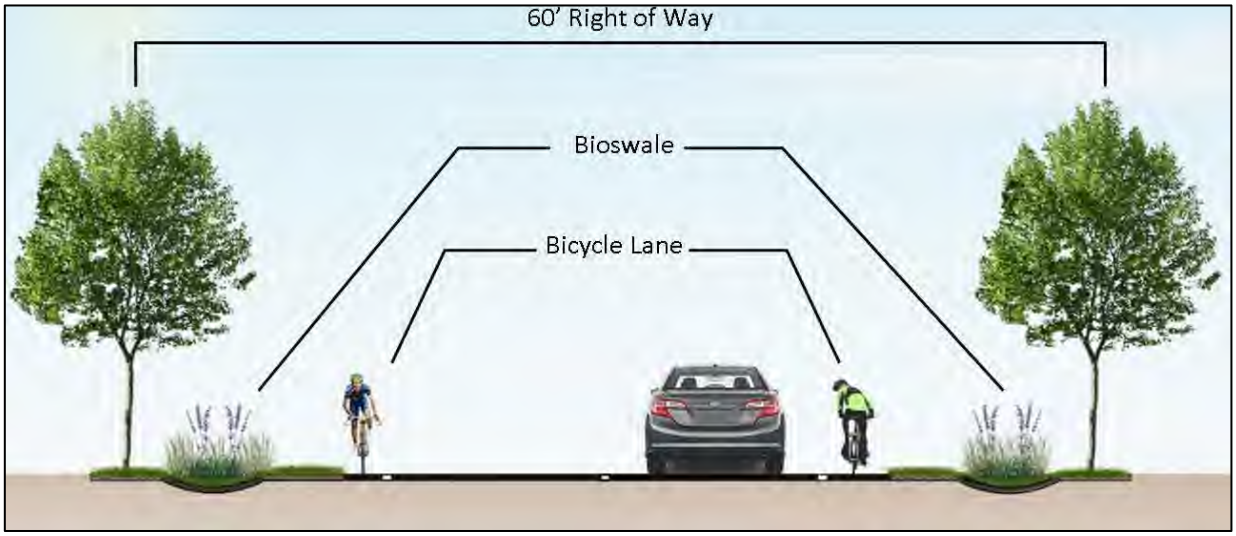
The subdivision layout includes a number of Complete Streets elements to cater to pedestrians and bicyclists.

First, the subdivision is planned to have just over two miles of nature trails throughout the property. This is a noticeable benefit compared to the current conditions with the site comprised largely of unmanaged landscaping surrounding paved parking lots and narrow roads, utilized by some residents as a walking route.

Next, the interior subdivision roads have been designed to meander slightly, avoiding the type of long straightaway segments that can encourage vehicle speeding. Additionally, the proposed interior roads are designed to be wide enough for vehicles as well as bicycles, with appropriate landscaping to provide an attractive walking and cycling network within the property that does not exist today. The striped bicycle lanes will help to visually narrow the remainder of the travel way, which is considered a traffic calming measure that encourages reduced vehicle speeds.

Bicycles will be able to connect to the "Share the Road" bicycle route on Route 25A.

Figure 9-3: Proposed Interior Subdivision Road Cross Section



Construction Phase Traffic

At the preliminary subdivision stage, it is premature to quantify construction duration, phasing, routes, numbers of workers, etc.

In qualitative terms, the subdivision has enough paved, open/unused space (e.g. the area formerly utilized as the Towne Bus depot parking) that it should be able to accommodate construction workers and construction vehicles. There is no anticipated need for off-site parking for workers (who would then require shuttles to get to the work site), and there is no anticipated displacement of existing tenants' parking on Lot 1 or Lot 2.

The subdivision could be developed one lot at a time or multiple lots at once.

The most labor-intensive phase would entail the earthwork required to grade and level the future interior site roads and lot areas, and to excavate the DRAs and STP leaching areas. As described in Section 2.13, this represents a net of approximately 38,000 cubic yards). Considering 67% of the excavation by 40-yard trucks and the remainder by 30-yard trucks, these tasks could take roughly 50 days. This projection considers the volume of material to be removed, adjusted with a 5% "fluff" factor to account for the fact that moving the material will introduce air voids, and the material will not be packed down for transport.

- 38,000 cubic yards + 5% fluff = 39,900 cubic yards of space / average 36.7 yards
- This works out to 1,088 trips:

- (38,000 x 1.05) / 36.7 average cubic yards per truck = 1,088 trips
- These trip numbers are then increased by 10% to be conservative and to account for individual days when conditions may not permit work (i.e., holidays, inclement weather, potential truck breakdowns):
  - 1,088 x 1.1 = 1,197 trips
- 30-yard trucks can be loaded in approximately 15 minutes, and 40-yard trucks can be loaded in approximately 30 minutes. If there are ten working hours per day, this works out to 24 truck hauls per day, resulting in calculated timeframes of 37-46 days:
  - 1,197087 total trips / 24 trips per day = 50 days

Construction worker traffic is expected to be far less than the projected subdivision trip generation. Large work sites generally have fewer than 200 workers, who would comprise up to 133 trips per hour (compared to the subdivision's projected trips up to 538 trips per hour). Additionally, construction workers tend to work staggered hours compared to typical 8:00-6:00 commuters. Truck activity would be restricted to 8:00-6:00, but workers would generally be expected to arrive at the work site by 7:00 a.m. (outside the AM peak hour) and many would leave before 3:30-4:00 p.m. (outside the PM peak hour).

With respect to the routes construction vehicles would take, it will depend on local haul sites to be selected by the contractor. The property will likely be accessed via Route 347 and CR 97-Nicolls Road, designated truck routes. The construction manager(s) would coordinate with the Town, the NYSDOT, and other interested parties regarding potential designated construction routes to execute the best means of operation.

9.3. Parking

Based on the proposed land use mix, the Town will require 2,346 on-site parking spaces:

Lot 1: Existing Mixed-Use Buildings: 660 spaces[62]

- Existing buildings: 478 spaces
  - Light industrial uses at 1 space per 500 s.f. x 33,615 s.f. = 67.2 = 68
  - Retail uses at 1 space per 100 s.f. x 750 s.f. = 7.5 = 8
  - Office/medical office uses at 1 space per 150 s.f. x 25,481 s.f. = 169.87 = 170
  - Fitness center over 5,000 s.f. at 1 space per 150 s.f. x 15,491 = 103.27 = 104
  - Fitness center under 5,000 s.f. at 1 space per 100 s.f. x 3,469 = 34.69 = 35
  - Education uses at 1 space per 100 s.f. x 7,904 s.f. = 79.04 = 80
  - Exhibition Space at 1 space per 150 s.f. x 1,905 s.f. = 12.7 = 13
- Future new tenants to reach full occupancy (41,911 s.f. vacant): 182 spaces
  - Light industrial uses at 1 space per 500 s.f. x 20,956 s.f. = 41.9 = 42 spaces
  - Office/medical office uses at 1 space per 150 s.f. x 20,956 s.f. = 139.71 = 140

Lot 2: Existing Catering Hall: 219

[62] This is a conservative projection compared to examining the entire building space as light industrial: 1 space per 500 s.f. for entire space is a requirement for 302 spaces.

- 1 space per 4 people x 874 people (maximum rated occupancy)[63] = 218.5 = 219

<u>Lot 3: Landbanked Parking: 0</u>

<u>Lot 4: Proposed Hotel with Restaurant: 380</u>
- 1.25 spaces per hotel room x 150 = 187.5 = 188
- 1 space per 150 s.f. day spa/fitness x 10,000 s.f. = 66.67 = 67
- 1 space per 4 conference center seats x 500 = 125

<u>Lot 5: Proposed Medical Office: 369</u>
- 1 space per 150 s.f. x 55,350 = 369

<u>Lot 6: Proposed Medical Office: 498</u>
- 1 space per 150 s.f. x 74,650 = 498

<u>Lot 7 and Lot 8: Proposed Assisted Living: 110 for each lot = 220</u>
- 1 space per unit x 220 units = 220

<u>Lot 9: Proposed STP: 2 (spaces for workers)</u>

As a "green" planning measure, some of the required parking would be satisfied using spaces that are shared among adjacent lots, and/or landbanked spaces that can be paved if they are genuinely needed. The subdivision plan avoids over-paving to minimize the loss of green space, to retain a more rural character on-site, and to present a "green," Complete Streets-oriented approach. The subdivision has complementary uses whose peak parking needs occur at different times, which make this a suitable opportunity for landbanked[64] and shared parking.[65] These concepts are described in more detail in Appendix F. Overall:

- Landbanked parking is a set-aside that can be paved in the future if a need is identified, and until such time as that occurs, landbanked spaces can remain green.
- Shared parking spaces serve multiple, proximate land uses, one use at a time, for uses that peak at different times. One shared parking space is functionally equivalent to two or more "available" spaces. Shared parking is a sustainable technique because it leaves green space instead of paving "extra" parking that is not genuinely needed.

At the Flowerfield property, the catering facility is most active on nights and weekends, when the industrial space is almost completely inactive, and typical weekday work hours, the scenario is reversed. With the planned cross connections between Lots 1 and 2, parking spaces near either facility can serve either use, so sharing parking spaces makes

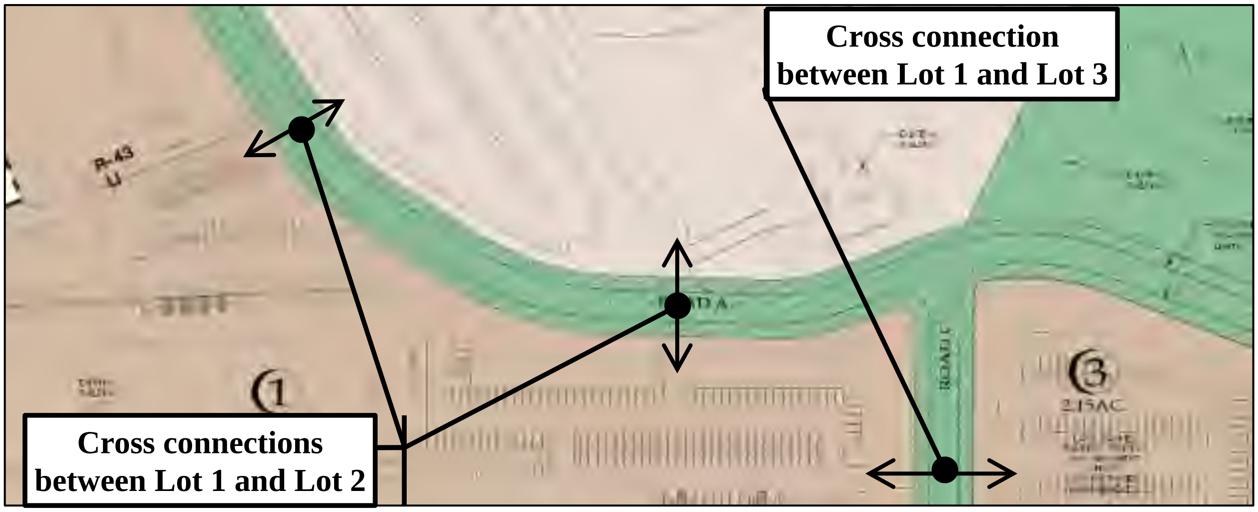
[63] Public assembly occupant limit for the Flowerfield catering facility (copy of Town of Smithtown Fire Prevention Division permit provided to Cameron Engineering). See Appendix L page L-14.

[64] Landbanked parking: spaces that will not be paved (i.e. kept green), which can be utilized as temporary overflow if needed, and which can be paved in the future if needed on a regular basis.

[65] Shared parking: spaces that will serve different land uses at different times of the day or week, potentially on a different lot than the land use it serves.

sense. The following figure is an excerpt of the Subdivision Plan to illustrate this concept. Lot 3 (if needed to be paved) is meant to support potential expansion on Lot 1, since Lot 2 inherently has excess parking.

Figure 9-4: Subdivision Plan Excerpt



The Preliminary Subdivision Plan provides sufficient parking overall and for each individual lot, using a mix of paved spaces, shared spaces (which serve different uses at different times), and land-banked spaces.

The following tables summarize the total available parking, and the type of parking (paved, landbanked, and/or shared) for each lot. Based on the genuinely available parking, there will be a site-wide surplus of up to 319 spaces, which is the calculated difference between 2,665 “total available” and 2,346 required.

Table 9-3: Excerpt of Traffic Study Parking Data
Parking on Lot 1 and Lot 2 (Existing Uses)

<table>
<tr><th>Lot</th><th>Land Use</th><th>Required Spaces</th><th>Existing</th><th>Displaced</th><th>Shared Parking</th><th>Total Available</th></tr>
<tr><td>1</td><td>Mixed-Use Buildings</td><td>660 with full occupancy</td><td>557</td><td>-116 displaced by Roads A, B, C</td><td rowspan="2">At least 219 spaces on Lot 2 (catering hall) are available for Lot 1 during weekday daytime periods</td><td>660 total
441 + 219 shared</td></tr>
<tr><td>2</td><td>Catering Hall</td><td>219</td><td>355</td><td>0</td><td>355 during evenings and weekends</td></tr>
<tr><td colspan="2">Total Parking: Existing Uses</td><td>879</td><td>912</td><td colspan="2"></td><td>796 paved</td></tr>
<tr><td colspan="7">Lot 1 will have access to 660 or more spaces because Lot 2 (a catering hall) utilizes little or no weekday daytime parking. Lot 2 will have more parking than required by code.</td></tr>
</table>

Proposed Parking on Lots 3 through 9 (Potential New Uses)

Lot	Land Use	Required Spaces	Proposed Parking: Paved and Striped	Proposed Parking: Land-banked	Proposed Parking: *Shared Parking*	Proposed Parking: Total Available	Notes
3	Landbanked	0	0	181	0	181	181 excess spaces
4	Hotel	188	258	0	*122 spaces to be shared with Lot 2 and/or 3 during weekday evenings and weekends*	258 + *122 shared*	380 required *380 available including 122 spaces shared with Lot 2 and/or 3*
	Day Spa/Fitness	67					
	Conference Center	125					
5	Medical / R&D Office	369	308	61	0	369	369 required *369 available including landbanked*
6	Medical / R&D Office	498	418	80	0	498	498 required *498 available including landbanked*
7	Assisted Living	110	110	0	0	110	110 required, 110 available
8	Assisted Living	110	110	0	0	110	110 required, 110 available
9	STP*	0					
Total Parking: New		1,467	1,204	322		1,526	

- Total Required parking spaces: 879 + 1,467 = 2,346
- Total Paved parking spaces: 796 + 1,204 = 2,000
- Total Land-banked parking spaces: 322
- Total Available spaces, including paved and land-banked: 2,322
- Some of the 2,322 parking spaces can serve multiple lots at different times. The same spaces in Lot 2 can also serve Lot 1 or Lot 4, and spaces in Lot 3 can serve Lot 1 or Lot 4.
- Therefore, the site will function as if it has at least 2,346 spaces, without actually paving 2,346 spaces (a “green” approach). (** Note: this excludes 2 spaces provided next to the STP since these spaces will be for maintenance vehicles only and will not be available to the public*)

Figure 9-5: Depiction of Lot 1 shared spaces with Lot 2 and Lot 3

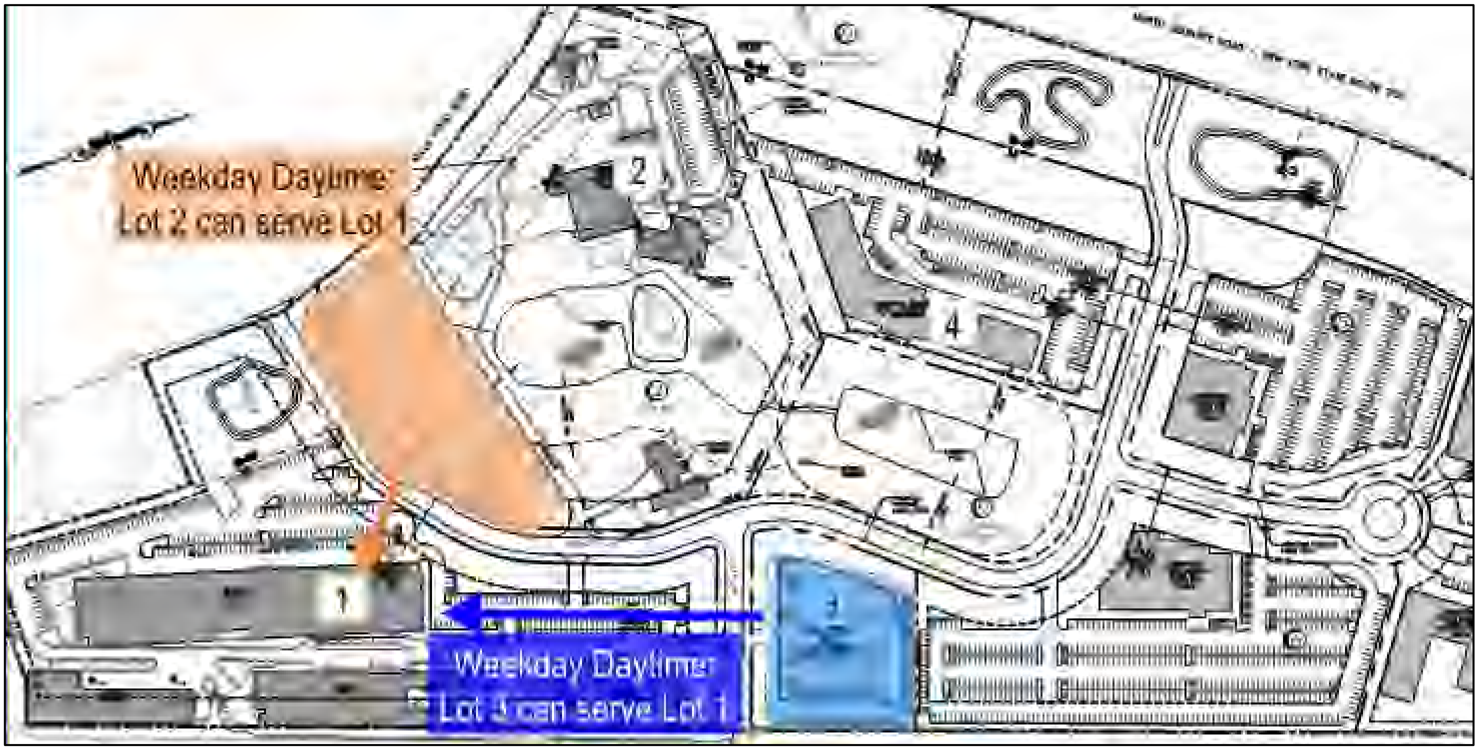


Figure 9-6: Depiction of Lot 4 shared spaces with Lot 2 and Lot 3

9.4. Proposed Mitigation / Improvements

Based on GIS parcel data, the respective right-of-way widths on Route 25A and Stony Brook Road are 50 feet and 60 feet. It is anticipated that any improvements can be achieved within public right-of-way, and no acquisitions or easements are required.

As stated above, and in the Traffic Study, mitigation is warranted if there would be significant delay increases, or a LOS change that brings a movement to LOS F. The intersections not listed below as needing mitigation, maintain their No Build LOS or would experience Build LOS at LOS E or better.

1. <u>Route 25A and Mills Pond Road</u>

The intersection will need to be signalized (based on a signal warrant study, see the Traffic Study in Appendix F, page 5-1) and needs a westbound left turn arrow phase and a northbound right turn arrow overlap as part of the timing plan. The intent is for westbound drivers to have a left turn arrow, but also be permitted to make a left turn with a solid green ball, so long as they yield to oncoming eastbound traffic. A 50-foot westbound left turn lane is needed on Route 25A, with restriping the eastbound and westbound approaches for appropriate tapers. The existing geometry provides room for a flared eastbound right turn area to accommodate at least one vehicle.

2. <u>Route 25A and Stony Brook Road</u>

The NYSDOT is in the process of analyzing improvements at this intersection. Without mitigation, this intersection would experience degraded LOS during the PM and Saturday peak hours. There are two potential mitigation measures that would each improve circulation and safety, and that would each conceivably be approvable by NYSDOT, which has jurisdiction. As noted in the *Route 25A - Three Village Area: Visioning Report for the Hamlets of Stony Brook, Setauket and East Setauket* prepared on behalf of the Town of Brookhaven in 2017[66], NYSDOT is in the process of vetting a signal vs. a roundabout for this intersection to address existing safety and congestion concerns. Based on July 2018 NYSDOT comments (pages B-58 through B-62), this selection has not yet been made by the State.

If the NYSDOT elects to install a signal, there would be a southbound left turn arrow phase and geometry improvements achieved with pavement markings:

- Shift the southbound left turn to the signal, and provide a lane to receive southbound left turn traffic.
- Add yield control for northbound right turns, which is a two-part safety measure: it avoids southbound left turns from queuing through the intersection, and it assigns the yield to an approach where drivers can look straight ahead for the traffic to which they need to yield right-of-way.
- Stripe the westbound right turn lane to be perpendicular with Route 25A. This will improve sight lines for westbound drivers, compared to the existing condition where drivers have to turn their heads almost 180 degrees to see oncoming northbound traffic.

[66] The entire *Visioning Report* is posted on the Town of Brookhaven website, and is excerpted in the DEIS Traffic Study: https://www.brookhavenny.gov/Forms?Command=Core_Download&EntryId=11103

3. Route 347 and Moriches Road

The NYSDOT has directed mitigation at this intersection, which would otherwise have a movement degrade to LOS F during the PM peak hour. The mitigation is to modify the signal timing plan to shift 3 seconds of green time to the eastbound approach, and for the off-peak (Saturday) phase plan, also move 2 seconds of green time from the northbound (mall exit) approach to the southbound (Moriches Road) approach. While the intersection would operate similarly to its No Build operation with no lane changes, NYSDOT stated in a July 2018 letter that a second eastbound left turn lane is required as additional mitigation. This study considers a 75-foot storage bay, which can be accommodated within the existing median on Route 347.

4. Stony Brook Road and South Drive

Without mitigation, the intersection would have AM and PM movements noticeably degrade within LOS F.

The proposed mitigation is to add a 100-foot southbound left turn lane and restripe a portion of northbound and southbound Stony Brook Road on either side of the intersection to provide appropriate tapers in both directions. Add a southbound left turn arrow phase to the existing signal, for "protected-permitted" operation (drivers can turn on a left turn arrow, or during a green ball, so long as they yield to oncoming northbound traffic). Add a northbound right turn arrow so these right turns can proceed at the same time as the westbound South Drive approach. Minor signal adjustments will be required to add the turn arrows and to ensure that all signal heads retain optimal visibility based on the new lane alignments. "Cone of vision" requirements are dictated by the national *Manual on Uniform Traffic Control Devices* (*MUTCD*).

This mitigation is far preferable to adding through lanes. Left turns comprise up to 60% of the southbound traffic volume, so accommodating left turns in their own lane with a turn arrow yields significant improvements over current conditions.

5. Stony Brook Road and Oxhead Road

Without mitigation, the intersection would have PM movements noticeably degrade within LOS F, and would have noticeable movement delay increases during the AM peak hour.

The proposed mitigation is to restripe a portion of northbound and southbound Stony Brook Road on either side of the intersection to add a 100-foot southbound left turn lane and appropriate tapers in both directions. Next, add a southbound left turn arrow phase to the existing signal's timing plan, with protected-permitted operation. Minor signal work will be required to add signal faces for the turn arrows and to ensure that all signal heads retain optimal visibility per the *MUTCD.*

6. Stony Brook Road at Route 347

Without mitigation, the intersection would have PM left turn movements noticeably degrade within LOS F.

The proposed mitigation is to modify the traffic signal timing plan by shifting green time from the east-west phase to the southbound approach on Stony Brook Road.

Though not proposed, an alternate mitigation is to widen northbound Stony Brook Road for a ±120-foot northbound right turn lane, and to re-designate the existing right turn lane as a second through lane. The northbound approach would therefore change from Left, Through, Right, to Left, Through, Through, Right. Under this alternate mitigation, the signal would also be modified to add right turn overlaps in each direction. NYSDOT did not declare a preference in its July 2018 letter.

<u>Remaining Intersections 7 through 17</u>

The applicant believes no mitigation is required at the following intersections, because the delay changes are not significant, because Build LOS will be LOS E or better, and/or because there are no LOS changes:

7. Route 25A at Lake Avenue
8. Route 25A at Moriches Road
9. Moriches Road at Lake Avenue
10. Moriches Road at Mills Pond Road
11. Moriches Road at Woodlawn Avenue
12. Route 25A at Main Street
13. Stony Brook Road at Hallock Road
14. Mills Pond Road Site Access 1
15. Mills Pond Road Site Access 2
16. Route 25A Site Access (future)
17. Stony Brook Road and Development Drive

<u>August 2019 Update:</u>

As of August 2019, there are road improvements underway along Stony Brook Road near Gyrodyne and the Stony Brook Research and Development Park. Upon review of the Town's 2019 Adopted Capital Budget[67], these are Town of Brookhaven capital improvements. These improvements, described below, post-date the DEIS traffic study, but do not change the study's conclusions or mitigation recommendations. In fact, some of the underway improvements comprise the recommended mitigation in the traffic study. As such, it is the applicant's opinion that the traffic study's findings remain valid.

Included improvements (based on the 2019 Adopted Capital Budget and as observed in August 2019) are:

- Install new curb, sidewalk, and bicycle lane on the west side of Stony Brook Road from Development Drive south to the Stony Brook Fire Department (just south of Oxhead Road)
    - This has no impact on traffic flow or analysis
- Signalize the Research and Development Park/Development Drive intersection on Stony Brook Road; upon observation in August 2019, there does not appear to be any change in the number of lanes
    - This will enable better side street flow than the traffic study shows, but does not change the conclusions thereof (i.e. no intersection mitigation associated with the proposed subdivision)
- Install left turn lanes on Stony Brook Road at the South Drive and Oxhead Road intersections

[67] https://www.brookhavenny.gov/Archive.aspx?ADID=3370 accessed August 26, 2019

  - These measures are recommended in the proposed DEIS traffic study

- Build a southbound acceleration lane from Development Drive onto southbound Stony Brook Road, and build a northbound acceleration lane from South Drive onto northbound Stony Brook Road
  - This yields better east-west right turn flow than the traffic study shows, and does not change the conclusions thereof as to recommended mitigation

10. Community Services

10.1. Existing Conditions

Police
The site is served by the Fourth Precinct of the Suffolk County Police Department, which provides regular patrols near the property.

Fire
The site is served by the St. James Fire District. The nearest firehouse is at 533 North Country Road, across from Lake Avenue (±1.1 miles west of the site). The district also has another firehouse at 221 Jefferson Avenue[68]. The district provides emergency medical services in addition to fire protection.

Schools
The Flowerfield property is located in the Smithtown Central School District and currently does not generate any students for the District.

Water
The St. James Water District supplies potable water to the site. Water use for the existing industrial buildings was 18,850 cubic feet (141,000 gallons) during the latest available 12-month period (November 16, 2015 to November 16, 2016) according to Gyrodyne, LLC bills from the St. James Water District. In addition, the on-site well was utilized for make-up water for the on-site ponds.

Solid Waste
For the existing operations, solid waste was estimated at 1,959.6 pounds per day, or 17.1 tons per month.[69] 1,509.6 pounds per day (15.1 tons per month) of solid waste is attributed to the existing light industrial operations, while the catering operation produces an estimated 450 pounds of solid waste per day of operation (2 tons per month). The solid waste calculation for the existing catering operation is based upon over five years of operational data: 623 events held over 72 months = an average of 9 events per month.

Solid waste removal and recycling are handled by Jet Sanitation Service Corp. in Islandia. According to Jet Sanitation representatives, solid waste is brought to the Covanta Resource Recovery Plant in East Northport and recycled items are brought to Island Recyling in Central Islip.

Energy
The existing facility uses electricity, fuel oil, and propane gas.

10.2. Potential Impacts of Proposed Subdivision

Police and Fire
New development at the site would increase the demand for community services. However, the fire/emergency services and police departments will benefit from the additional tax revenues generated by the proposed subdivision.

[68] St. James Fire District website http://www.stjamesfd.org/ accessed April 2017.
[69] National Solid Wastes Management Association Technical Bulletin #85-6

Schools

Since the proposed development will not include any residential uses which might house school-aged children, no new students will be generated by the subdivision. All tax revenues generated from the proposed subdivision would be expected to have a positive impact on the schools.

Water

The estimated potable water usage is 87,534 gpd (see Table 10-1 below) accounting for Suffolk County demand rates for the existing uses (18,834 gpd). This exceeds the actual water demand at the existing uses, based on water bills, as described above.

Table 10-1: Proposed Potable Water Use

Unit Type	**Number/Size[70]**	**Daily Potable Water Demand Rate**	**Potable Water Demand (gpd)**
Existing Industrial Park			
General Light Industry	35,715 s.f.	0.04 gpd / s.f.	1,429
Retail	750 s.f.	0.15 gpd / s.f.	113
Office	23,123 s.f.	0.06 gpd / s.f.	1,387
Medical Office	2,817 s.f.	0.1 gpd / s.f.	282
Fitness Center Over 5,000 s.f.	15,491 s.f.	0.3 gpd / s.f.	4,647
Fitness Center Under 5,000 s.f.	3,469 s.f.	0.1 gpd / s.f.	347
School (184 occupants)	9,175 s.f.	7.5 gpd / person	1,380
Exhibition Space (71 occupants)	2,130 s.f.	0.03 gpd/s.f. + 2.5 gpd/person	241
Occupy Vacant Space	37,067 s.f.	50% at 0.06 gpd / s.f. 50% at 0.04 gpd / s.f.	1,853
Existing Catering Hall	874 occupants	7.5 gpd / person	6,555
Existing Residence on Caterer Lot	2 units	300 gpd / unit	600
Total of Existing Land Uses			**18,834 gpd**
Hotel	150 rooms	150 gpd / room	22,500
Restaurant	150 seats	30 gpd / seat	4,500
Conference Center	500 seats	3 gpd / seat	1,500
Day Spa / Fitness	10,000 s.f.	0.3 gpd / s.f.	3,000
Medical Office	130,000 s.f.	0.1 gpd / s.f.	13,000
Assisted Living	220 units	110 gpd / unit	24,200
Total of Proposed Subdivision Uses			**68,700 gpd**
		Total	**87,534 gpd**

The St. James Water District indicated in a letter dated June 18, 2018 (page B-36) that there is an existing 12-inch main on Route 25A, and there are existing 12-inch and 8-inch mains on Mills Pond Road, so a water main extension is not necessary. The Water District Superintendent did not indicate capacity concerns. A follow-up letter was sent to the District on April 19, 2019 to confirm that the District has adequate capacity to serve the subject property.

[70] Source: Rent roll data provided by Gyrodyne LLC.

Irrigation would be provided by the existing on-site well. Irrigation would be approximately one inch per week for seven months each year (April through October) over the managed landscape areas. This corresponds to 11,000 gallons per day on average.

Solid Waste

The estimated solid waste associated with the proposed subdivision is approximately 86.3 tons per month (a calculated increase of 69.2 tons per month) per Table 10-2. This table takes a conservative approach with respect to the solid waste associated with the hotel: 200 events per year with 80% average attendance (i.e. 400 attendees); 150 meals each served for breakfast, lunch, and dinner (i.e. 450 meals/day).

Table 10-2: Proposed Solid Waste

	Rate[71]	pounds per day	Tons per month
Existing Uses			
150,959 s.f. Light industrial	1 lb/day per 100 s.f.	1,509.6	15.1
Caterer (300 guests typically, 9 events per month on average)	1.5 lb/meal x 300 guests	450	2.0
Existing Subtotal		1,959.6	17.1
Subdivision Uses			
150-room first class hotel	3.2 lb/day per room	480	7.3
10,000 s.f. day spa/fitness	(included in room rate)	0	0
150-seat restaurant (say 3 meals/day)	2 lb/day per meal	900	13.7
500-seat conference center	2 lb/day per meal	800	6.7
130,000 s.f. office	1 lb/day per 100 s.f.	1,300	19.8
220 assisted living units (consider 286 residents at 1.3/room on average)	5 lbs/day/resident	1,430	21.7
Proposed Subtotal		4,910	69.2
TOTAL		6,870	86.3

The proposed subdivision would have solid waste picked up by a private carter who would deliver the waste to a permitted solid waste management facility.

Energy

An increase in energy consumption would occur as a result of the development. At the preliminary subdivision phase, it is premature to develop specific load calculations for electricity, heating oil, and/or natural gas. Gyrodyne and/or the eventual developers will coordinate new service connections with National Grid and PSEG-LI as required.

10.3. Proposed Mitigation

It is the applicant's opinion that no mitigation is required, apart from coordinating with service providers on the types and locations of service connections because the subdivision elements minimize Town involvement (no new public streets to maintain), there would be no new school-aged children living at the site, and there is no indication from community service providers regarding an inability to serve the proposed land uses.

[71] National Solid Wastes Management Association Technical Bulletin #85-6

11. Taxes/Economic Impacts

11.1. Existing Conditions

HR&A Advisors, Inc. (HR&A) prepared an economic and fiscal impact analysis of the Proposed Action, analyzing the likely economic, fiscal, and employment impacts of the Proposed Action, as well as a no-action scenario and five alternative development scenarios. A full copy of the economic and fiscal impact analysis is provided in Appendix H.

Tax revenues for the existing operations (in 2017 dollars) are presented in Table 11-1 below. Existing tax revenues were calculated by applying the applicable $2,259.01 mill rate for the site's tax code 76 to the assessed value of the property.

Table 11-1: Summary of Tax Revenues from Existing Operations

Smithtown Central School District	Town Wide General Town and County	Town Wide Excluding Villages	Smithtown Library	St. James Fire District	Street and Arterial Highway	Total Taxes
$273,000	$30,000	$66,000	$10,000	$19,000	$1,000	**$399,000**

Since the existing uses would remain, the existing tax revenues are expected to continue with the proposed subdivision, pending changes to the assessed valuation.

11.2. Potential Impacts of Proposed Subdivision

HR&A performed a market analysis to determine the viability of the subdivision's proposed uses. The number of residents over the age of 75 is expected to increase over the next five years, and the proximity of the site to Stony Brook Medicine would support the medical needs of residents living in the proposed assisted living development who require around-the-clock staff and other medical services. Robust demand from local and regional customers, as well as visitors to the University would support a 150-key hotel. The penetration of hotels in the Study Area has been strong with average occupancies of 73% even after 1.5 years of doubling the supply of rooms in 2016. Finally, Stony Brook Medicine is expected to nearly double the size of its facilities by 2020. The expansion of the Hospital is expected to drive demand for additional Class A medical office space.

HR&A utilized the IMpact analysis for PLANning (IMPLAN) input-output model for Suffolk County, New York, created by MIG, Inc. (formerly Minnesota IMPLAN Group, Inc.), to analyze the Proposed Action's economic impacts from both construction and annual ongoing operations at full development buildout. The IMPLAN model is the industry standard, and is used to conduct economic impact analyses by leading public and private sector organizations across the United States. This analysis estimates economic output, job creation, and wages/income paid to employees at the following levels: Direct Impacts, Indirect Impacts and Induced Impacts.

HR&A's economic impact analysis found that the Proposed Action would generate $228 million in economic activity and 1,507 total jobs during the construction phase. $127.7

million in annual net new economic activity would be generated by the Proposed Action, and 1,078 total jobs would be created as a result when the project is fully built out and operational. Based on the Proposed Action, HR&A's fiscal impact analysis found that the site would generate $3 million in recurring net new fiscal impact per year after full build out, accounting for a total net tax revenue of $3.76 million and $0.76 million in net new fiscal costs for workers and residents.

Construction

HR&A developed a series of assumptions to model the one-time economic impacts of construction of the Proposed Action. The total costs for the Proposed Action are $147.1 million. The Proposed Action is estimated to generate $228 million in total economic output, as shown in Table 11-2.

Table 11-2: Summary of One-Time Impacts from Construction (Economic Output)

Direct	Indirect	Induced	Total Impacts
$147,100,000	$27,600,000	$53,300,000	**$228,000,000**

The Proposed Action is estimated to generate approximately 1,507 total jobs from construction of the project, as shown in Table 11-3.

Table 11-3: Summary of One-Time Impacts from Construction (Employment (FTE))

Direct Jobs	Indirect Jobs	Induced Jobs	Total Jobs
999	142	366	**1,507**

Operation

In assessing the one-time and ongoing fiscal impact at full build-out, HR&A analyzed the local tax structure for the Town of Smithtown. The Town of Smithtown does not have local sales tax, personal income tax, business income tax, or hotel tax. Therefore, one-time impacts on sales tax or from construction activities are not relevant to this analysis. HR&A also assessed the annual recurring fiscal impact of property tax revenue at the local level to estimate annual recurring fiscal impacts from the proposed project's operations. The Proposed Action's estimated capitalized value of $127.9 million results in an assessed value of $1,852,690, which represents an approximately $1.67 million increase.

Table 11-4 shows the total anticipated tax revenue generated by the Proposed Action broken down by receiving entity (in 2017 dollars) after applying the applicable $2,259.01 mill rate for the site's tax code 76 to the assessed value. The Proposed Action would generate $3.76 million in net new property taxes as compared to the existing conditions of the site. The bulk of the taxes, $2.85 million, would be received by the Smithtown Central School District and the remaining $1.31 million would be received by the Town and other entities.

Table 11-4: Summary of Annual Property Taxes at Full Build Out (2017$)

	Smithtown Central School District	**Town and Other Entities**	**Total Taxes**	**Net New Taxes**
Existing Conditions	$270,000	$130,000	$400,000	-
Proposed Action	$2,850,000	$1,310,000	$4,160,000	**$3,760,000**

HR&A has also estimated the annual cost to the Town of Smithtown for the Proposed Action as compared to the existing conditions. For the Proposed Action, the net new cost to the Town of Smithtown is estimated at $760,000 in 2017 dollars, shown in Table 11-5.

Table 11-5: Summary of Estimated Costs for Town of Smithtown (2017$)

	Number of Residents (Assisted Living)	**Number of Workers**	**Projected Cost per Resident**	**Projected Cost per Worker**	**Residents Cost**	**Workers Costs**	**Total Costs**	**Net New Costs**
Existing Conditions	0	172	$1,350	$450	$0	$80,000	$80,000	-
Proposed Action	320	911	$1,350	$450	$430,000	$410,000	$840,000	**$760,000**

Finally, HR&A projected the net fiscal impact to the Town of Smithtown for the Proposed Action as compared to the existing conditions, by subtracting the projected costs from the property tax revenues generated by the proposed development. As shown in Table 11-6, the Proposed Action would have a total net new impact of $3 million in 2017 dollars.

Table 11-6: Summary of Net Fiscal Impact for Town of Smithtown (2017$)

	Total Taxes	**Total Costs**	**Net Fiscal Impact**	**Net New Fiscal Impact**
Existing Conditions	$400,000	($80,000)	$320,000	-
Proposed Action	$4,160,000	($840,000)	$3,320,000	**$3,000,000**

<u>Secondary Impacts</u>

In addition, the Town requested additional information related to secondary impacts, referred to as the "economic ripple effect" in the Final Scope. These impacts would include an increase potential school-age children, demand for workforce housing and impact on community services. This secondary impact analysis was addressed by a memorandum prepared by Todd J. Poole, Managing Principal of 4ward Planning, which is provided in Appendix H (starting on page H-13) and summarized below.

As the Proposed Action does not include a residential component, no school-age children will be generated. In terms of workforce housing, among those workers who currently commute from a considerable distance, very few may choose to seek housing close to their new place of employment (in this case, the Flowerfield site), generally due to external considerations, such as where a spouse currently works or the school district in which their children are currently enrolled; this is an anecdotal (but reasonable, in the applicant's opinion) statement based on personal experience and general knowledge of what drives housing choice.

Additionally, many low- and moderate-income workers who would be required to staff a large number of positions at the assisted living facility and hotel are likely to commute from within a 40-minute distance (because there is little to no ability to commute to this site without a private vehicle – see Appendix F: Traffic Impact Study section 3.2, which explains there is no transit stop within ½ mile of the property) and, therefore, create a limited amount of demand for local area workforce housing.

Consequently, while there are a large number of direct jobs projected to be created by the Proposed Action, it is the applicant's opinion that likely only a small fraction of these new workers (less than five-percent) will generate new demand for local area housing. Further, and given this relatively conservative estimate, it is more likely than not that those workers seeking local area housing will do so through the purchase or rental of existing area housing stock – placing little, if any, increased demand on local municipal and school district services.

<u>Impacts to Local Hotel Market</u>
The Final Scope also requested a market analysis about the potential impacts of new hotel development (envisioned for Lot 4) on the existing local hotel market. Cushman & Wakefield performed an analysis of the local market utilizing Smith Travel Reports (STR), a national hotel industry analytic company. A full copy of this analysis is provided in Appendix H starting on page H-16.

Overall, the analysis found that the both the general Long Island hotel market, and in particular, the local market surrounding the Flowerfield site, show strong signs of growth and a high level of demand.

As a region, Long Island has the highest occupancy rate compared against similar areas for 2017, averaging 71.3%. STR data shows that the local market is particularly strong, as the Hilton Garden Inn at Stony Brook University has an average occupancy rate of 90%.

Due to its unique location, the demand driving increased hotel activity and occupancy for hotel rooms outweighs the current supply. The following unique factors play a significant role in driving this level of demand within the local hotel market: higher education institutions, hospitals, senior assisted living and nursing homes, and wedding and event venues.

11.3. Proposed Mitigation

It is the applicant's opinion that no mitigation is required because the proposed subdivision would be tax-positive to the local school district, the Town, and Suffolk County.

12. Land Use and Open Space Preservation

12.1. Existing Conditions

The majority of the subject property is currently vacant, with development on only two of the proposed lots (which comprise 30.76 acres of the 74.98-acre property). Actual building space comprises ±151,000 s.f. for the existing industrial-commercial buildings on Lot 1, and ±34,700 s.f. for the catering hall buildings and arbor on Lot 2.

Land use to the north and west is primarily agriculture and single-family homes, with retail space further west. Land use to the south consists of Stony Brook University; the CEWIT building is directly across the railroad tracks.

The existing zoning, by acreage, is provided in Table 12-1. No zone changes are proposed; only the acreage in each lot would change as a result of the subdivision.

Table 12-1: **Existing Zoning by Acreage**

Zoning District	Acreage	Use
Light Industrial (LI)	65.63	18.2 acres of industrial-commercial, 12.56 acres for catering hall, remainder vacant
R-43	9.32	Vacant
B Residence (in	0.03	Vacant

Surrounding zoning consists of R-43 and LI within the Town of Smithtown, B-1 within the Town of Brookhaven, and A within the Village of Head of the Harbor.

No development is proposed on any R-43 zoned land. Any land on the property that is zoned R-43 is either part of the NYS Route 25A (North Country Road) buffer, or it is part of the catering hall Lot 2 that the subdivision would not change. Therefore, R-43 and Residence B dimensional requirements will not apply to the proposed subdivision, except that all proposed buildings and parking spaces satisfy the required 100-foot buffer from R-43 areas.

Dimensional regulations for the existing LI zone are provided in Table 12-2 starting below. Table 12-3 starting on page 12-2 provides the Use Regulations for the existing LI zone.

Table 12-2: **Dimensional Regulations for Existing Zone**[72]

Dimension / Criterion	**Light Industrial (LI)**
Minimum lot area (square feet)	80,000 (2 acres)
Minimum lot area per dwelling unit (square feet)	80,000 (2 acres)
Minimum lot frontage at setback line (feet)	100
Minimum road frontage (feet)	50
Minimum front yard depth (feet)	50
Minimum rear yard depth (feet)	50
Minimum side yard width – any one yard (feet)	20
Minimum side yard width – total of both yards	40

[72] Town of Smithtown Ordinance, § 322-9.B Table of Dimensional Regulations, last updated May 2016 and accessed via ecode360.com/documents/SM0115/SM0115-322h%20ID-TDIMR.pdf

Dimension / Criterion	Light Industrial (LI)
Maximum gross floor area (percent of lot area)	42
Minimum landscape area (percent of lot area)	18, with at least 80% of the required front yard
Maximum height (Feet)	35
Accessory building or structure	
Maximum occupancy of required rear yard	25
Maximum height (feet)	18
Minimum distance from any lot line (feet)	10

Table 12-3: **Use Regulations for Existing LI Zone**[73]

Key: "P" means permitted; "BA" means permitted by special exception by the Board of Appeals; "TB" means permitted by special exception by the Town Board; "–" means not permitted

Type of Use	Light Industrial
RESIDENTIAL USE – none permitted on the LI zone	
COMMUNITY FACILITY USES	
Airport or heliport	TB
Arena or assembly hall	BA
Cemetery	-
Church or similar place of worship	P
College or university	-
Convent or monastery	P
Day camp	BA
Day-care center; nursery school	BA
Fire or ambulance station	P
Golf course or country club of 50 acres or more	P
Hospital or nursing home	TB
Membership club, nonprofit	BA
Park, playground, or nature preserve	P
Public library, museum, or similar use	P
Public utility facility	TB
Rail or bus station	TB
School, elementary or high	P
Swimming or boat club	BA
BUSINESS USES	
Adult entertainment, Adult retail shop	-
Agriculture	P
Animal hospital, veterinarian or kennel; animal hospice; animal boarding	BA
Animal husbandry	BA
Appliance, office machine, or furniture repair	-
Bank	P
Barbershop or similar personal service shop	-
Billiard hall	-

[73] Town of Smithtown Ordinance, §322 Attachment 9, last updated November 2016 and accessed via http://ecode360.com/documents/SM0115/SM0115-322i%20ID-TUSER.pdf

Key: "P" means permitted; "BA" means permitted by special exception by the Board of Appeals; "TB" means permitted by special exception by the Town Board; "–" means not permitted	
Type of Use	**Light Industrial**
Boat sales and/or rental showroom	-
Bowling alley	TB
Broadcast studio or station, not including antennas	P
Canoe rental showroom	-
Car wash	-
Coin-operated laundromat	-
Commercial public recreation not otherwise listed herein	TB
Counter service restaurant	-
Dance, self-defense, or martial arts schools	-
Dry-cleaning plant of less than 4,000 square feet	
Fence or swimming pool sales	-
Filling station	-
Fitness center or gymnasium	P
Funeral home	-
Game center	-
Health spa	P
Horsemanship school or horse boarding	BA
Hotel or motel	TB
Lumberyard	-
Medical laboratory	P
Mini storage warehouse	BA
Motor vehicle sales or rental showroom	-
Nursery	-
Office	P
Outdoor golf driving range/miniature golf	TB
Power equipment shop	-
Repair garage	-
Restaurant	P
Retail establishment, not otherwise listed herein	-
Shipping center	-
Shoe repair, tailoring, or dressmaking	-
Shooting range	TB
Skating rink	TB
Studio for musician, painter, sculptor, or photographer	P
Tavern, bar, or inn	-
Taxi or limousine establishment	-
Tennis or racquet club	TB
Theater or Theater multiplex	-
Video rental shop	-
Vocational school	P
INDUSTRIAL USES	

Key: "P" means permitted; "BA" means permitted by special exception by the Board of Appeals; "TB" means permitted by special exception by the Town Board; "–" means not permitted

Type of Use	**Light Industrial**
Asphalt, brick or tile, burlap, textile thread, candle, or wax manufacturing	-
Cement batching	-
Concrete products manufacture	-
Construction equipment and supplies storage yard	-
Dyestuff manufacture	-
Forge plant	-
Foundry	-
Fuel storage or distribution	BA
Laundry or dry-cleaning plant of more than 4,000 square feet	P
Licensed junkyard	-
Machine shop	-
Monument manufacture	-
Non-nuisance industry (except specific prohibited uses in §322-11)	P
Plating works	-
Printing plant	P
Research laboratory	P
Rock crusher	-
Sand and gravel mining or processing	-
Trucking station	BA
Warehouse	P
Wholesale business or distributor	P
ACCESSORY USES	
Accessory apartment; Accommodations for 1 boarder	-
Cafeteria or restaurant incidental to primary use	P
Car wash, accessory to filling station	-
Christmas tree sales	P
Coin-operated machine	-
Customary accessory structure and/or use	P
Dish antenna	P
Game room	-
Home occupation	-
Horse stabling	-
Incidental retail not exceeding 3% gross floor area	P
Living quarters for parent	-
Outdoor dining area	BA
Outdoor storage	BA
Parking for business and/or industrial uses	P
Parking garage	BA
Private garage or off-street parking	P
Private swimming pool	P
Propane exchange	-

Key: "P" means permitted; "BA" means permitted by special exception by the Board of Appeals; "TB" means permitted by special exception by the Town Board; "–" means not permitted	
Type of Use	**Light Industrial**
Signs	P

12.1.1. Relevant Land Use and Visioning Plans

In April 2010, the Conservation Strategy Working Group issued on behalf of the Three Village Community Trust the *Three Village Conservation Strategy 2030*. This Visioning document focuses on the Three Village community (Stony Brook, Setauket, and East Setauket) but mentions the Flowerfield property as follows:

"Although not in the [Three Village] study area, but immediately adjacent to it, is property that still belongs to the Gyrodyne Corporation…about 76 acres that include a significant (70% plus) park-like undeveloped area along the southerly side of NYS Route 25A and a complex of small industrial/commercial buildings mostly along the LIRR tracks and Moriches Road [sic]…Protective covenants may require significant buffers along NYS Route 25A, but the [prior] development plans have usually included buffers of only about 100 feet (a standard distance that cannot be considered "significant"). This property is the gateway to the Three Village Area. The farmland property to the north of NYS Route 25A is protected by the Suffolk County Farmland protection program."

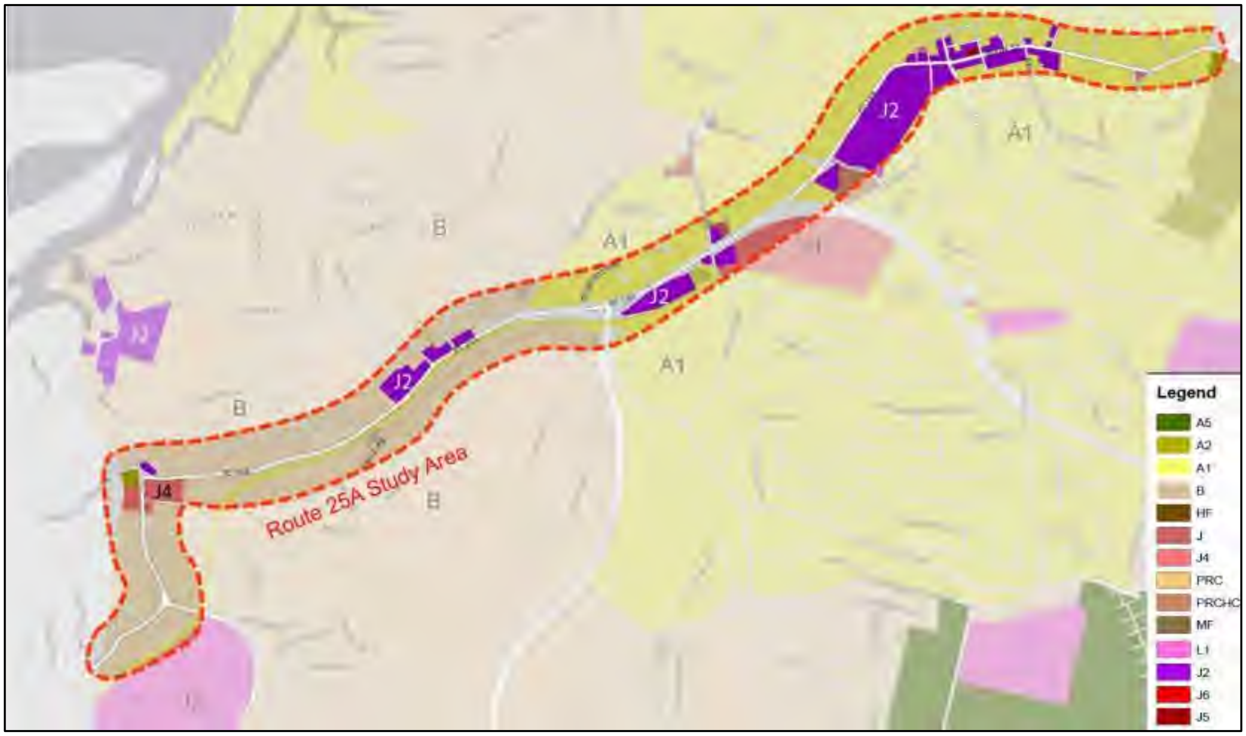
In July 2017, the Town of Brookhaven issued the *Route 25A – Three Village Area Visioning Report for the Hamlets of Stony Brook, Setauket, and East Setauket* intended as a precursor to an eventual Town-led Route 25A Corridor Land Use Plan and GEIS (Generic Environmental Impact Statement). The *Visioning Report* summarized the results of focus group meetings and visioning workshops. The extent of the *Visioning Report* ends just east of the Flowerfield property:[74]

Some of the relevant findings included "wish list" items to:

- Reduce congestion
- Improve safety, specifically at Route 25A-Stony Brook Road; Route 25A-Main Street; and Route 25A-Nicolls Road
- Improve pedestrian connections across LIRR
- Continuous sidewalks along 25A, especially to the museum area
- Improve streetscape in commercial areas with lighting, seating, sidewalks, landscaping
- Make corridor more comfortable for bicyclists

[74] *Visioning Report* Figure 2 (Zoning Map) on page 19.

Figure 12-1: Town of Brookhaven *Visioning Report* Figure 2 (Zoning Map)



Presented here are some direct quotes from the Town of Brookhaven's Visioning Report:

> *"Any changes along the road should respect the residential nature of the surrounding area; Route 25A should not be widened to accommodate higher traffic volumes. Route 25A should become more "walkable." This includes filling in gaps in the sidewalk network, improving crossings, and adding streetscape amenities where appropriate. The corridor should also become more comfortable for bicyclists, by incorporating bicycle facilities such as bike lanes, off-road paths, pavement markings (e.g. sharrows), and bike parking where feasible. The sidewalk and bicycle network should connect key destinations such as Stony Brook University, the Stony Brook train station, the Greenway Trail, the waterfront, and the museum area.*
>
> *Safety:*
> *The capacity of the roadway needs to be maintained in order to avoid further congestion and using alternative roads. This basic roadway objective was consistently expressed in all of the community meetings. One potential way to do this would be to support designs that slightly reduce traffic speeds on the roadway, while maintaining capacity. Traffic studies have consistently found that low to moderate speeds allow the maximum number of cars to use a roadway…As speeds increase, capacity slightly decreases because cars spread out more along the road. The average driver will correctly seek a greater distance from other cars as speed increases.*
>
> *Three intersections along Route 25A were identified by participants as being particularly problematic for motorists and pedestrians: at Stony Brook Road,*

> *Main Street (Stony Brook), and Nicolls Road...Participants supported the study of traffic conditions at these intersections to improve vehicular and pedestrian safety and encourage smooth traffic circulation. There were concerns for pedestrians crossing near the museums on Main Street, where sidewalks and crosswalks are warranted."*

The following excerpt is very relevant to the Gyrodyne subdivision application:

> *"NYSDOT recently studied Route 25A at Stony Brook Road and determined that a traffic signal was appropriate. Participants also supported studying the potential for a modern roundabout, both at Nicolls Road and Stony Brook Road, which could be more desirable to a signalized intersection…Roundabouts have increasingly been accepted in the United States, due to two main factors:*
>
> *1. Increased capacity and reduced vehicle delay: A high degree of capacity and fluidity can be achieved by the modern roundabout. When greater capacity is required, relatively simple improvements can be implemented such as widening the entries to provide more than one entry lane, and widening the circulatory roadway.*
>
> *2. Improved Safety: Roundabout design has consistently proven to be superior in safety to cross intersections. Reduced speeds alone make impacts less likely and less severe when they do occur. Driver error is less likely because the driver who enters the roundabout must be alert to only one traffic movement – he looks left for an acceptable gap to enter into the flow. By contrast, a driver at a four- way intersection has to deal with two or three different movements. In a roundabout, no driver can run a red light; therefore, right-angle collisions are not possible. The presence of the center island interrupts an otherwise straight path, forcing speed reduction and heightened awareness in the roundabout. It also is worth noting that reduced delays at roundabouts compared to signalized intersections have the effect of decreasing the level of frustration and aggressiveness of drivers must wait for a gap in the circulating flow. Also, modern roundabouts are designed for slow entry speeds (typically 10 to 20 mph) making them very safe."*

Next, the *Visioning Report* discusses Pedestrian and Bicycle Infrastructure (and the lack thereof):

> *"One objective generally expressed by participants in the Visioning workshops was to enhance the safety of all users of Route 25A including pedestrians and bicyclists…Currently, there are many sections along Route 25A that have narrow sidewalks, sidewalks on only one side of the street, and large curb-cuts where no sidewalks are present (e.g. in the section between Nicolls Road and Main Street in Stony Brook). Gaps in the sidewalk network, such as between Hawkins Road and Main Street should be filled. Improving conditions for biking was also supported amongst community members. There was a safety concern with adding bicycle lanes on Route 25A because of high traffic volumes and speeds. However, safety, accessibility, and efficiency for all users should be promoted when designing or improving a right-of-way, or reviewing*

> *site plan or subdivision applications of property fronting the roadway, or in close proximity to the roadway. Where feasible, bike lanes or share-the-lane pavement markings ("sharrows") should be considered for the roadway. In some locations, it may be possible to create an off-road pathway which would be preferred from a safety standpoint…it may not be possible to do both sidewalk and bicycle lanes in all areas because of the arrangement of the roadway. If this occurs, sidewalks should be given priority as they were deemed to be safer and more inclusive of all population groups."*

The *Visioning Report* also touts mixed uses, as presented at visioning workshops.

12.2. Potential Impacts of Proposed Subdivision

The change in land use that would accompany this subdivision would be expected to have positive impacts on adjoining properties due to the enhanced synergy with the nearby catering hall and University and Medical Center, along with enhanced landscaping treatment throughout the site. While there would be minor increases in traffic during some time periods, and minor changes in the visual environment, the proposed subdivision is consistent with surrounding land use and would follow all height/landscaping/buffer requirements to minimize visual impacts.

Additionally, there is no proposed change of zone associated with this application.

12.2.1. Design Measures to Preserve Open Space

Lot 9, which would fall under shared/common ownership, is intended to be a combination of open space and roads/infrastructure to support the rest of the subdivision. This common area will be just over 24 acres, much of which will be open space (or at least, undisturbed vegetation) along the Route 25A buffer and surrounding the proposed STP at the eastern portion of the property.

Each lot will abide by required building setbacks, and incorporates a single building on each lot. This too will help preserve open space. Overall, the Proposed Action will preserve over 36.5 acres of open space on the property (48.7% of the site's land area). See Figure 12-2 on page 12-9.

PROPOSED ACTION
TOTAL OPEN SPACE:
36.51 ACRES (48.7%)

LEGEND

OPEN SPACE AREA

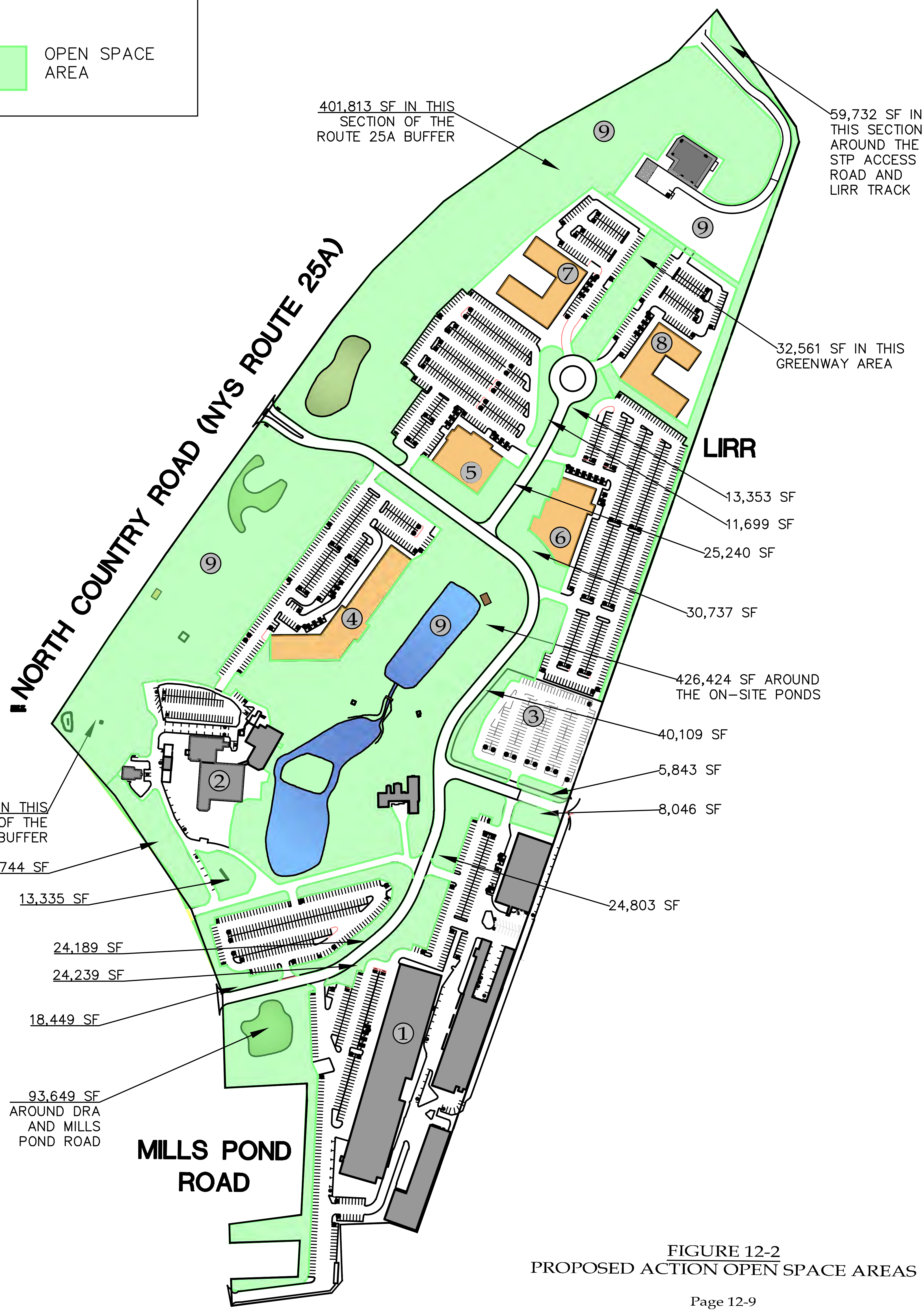


FIGURE 12-2
PROPOSED ACTION OPEN SPACE AREAS

GRAPHIC SCALE

300 0 150 300 600

(IN FEET)
HORIZ. 1 inch = 300 ft.

CAMERON ENGINEERING & ASSOCIATES, LLP
177 Crossways Park Drive, Woodbury, NY 11797 T: (516) 827-4900
1411 Broadway, Suite 610, New York, NY 10018 T: (212) 324-4000
303 Tarrytown Road, 1st Floor, White Plains, NY 10603 T: (914) 721-8300
Corporate Seal Initiated 1996 State of New York
www.Cameronengineering.com

Additionally, the Cameron Engineering Subdivision Plan incorporates two parking layout measures to preserve open space: shared parking and landbanked parking, as discussed earlier in Section 9.3 and Appendix F: Traffic Impact Study.

Shared parking can be utilized for nearby/adjacent complementary land uses which experience peak parking demand at different times of the day or the week. Landbanked parking can be used as peak or overflow parking as needed, while it reduces the loss of green space associated with new paved parking lots.

- 122: The proposed hotel (Lot 4) will share 122 parking spaces on Lot 1, 2, or 3
- 181: All of Lot 3 will be left undisturbed, and the portions of the existing bus depot not included in Lot 3 will be restored with heavy turf
- 219: If needed, Lot 1 will have use of up to 219 parking spaces shared with Lot 2
- 61: Lot 5 (medical office) will have 61 landbanked parking spaces
- 80: Lot 6 (medical office) will have 80 landbanked parking spaces

In total, up to 141 parking spaces would be landbanked, an area with 181 spaces will remain undisturbed, and up to 122 spaces will serve different uses at different times, which avoids the need to pave these 122 spaces.

On a large property, traffic engineering spatial planning methodology equates an individual parking space and its access to approximately 350 s.f. of space. Based on this ratio, and based on 263 (141 + 122) parking spaces that will not need to be paved to satisfy genuine parking demand, the use of shared and landbanked parking will preserve 92,050 s.f. of open space, equivalent to 2.1 acres. This represents 2.8% of the total site area[75], and it represents 4.7% of the lot areas to be subdivided[76].

12.3. Proposed Mitigation

The proposed subdivision plan preserves nearly half of the site (48.7%) as open space. Mitigation measures to reduce impacts on the physical environment are discussed in the sections on topography, soils, groundwater, stormwater, and ecological resources. Proposed mitigation techniques to reduce the human impacts of the change in land use are included in the discussions of noise, transportation, community services, visual quality, and utilities.

[75] Example calculation: 3.4 acres of the 74.98-acre site is 4.5%
[76] Example calculation: 3.4 acres of the 44.22-acre lots to be subdivided (74.98 – 18.20 – 12.56) is 7.7%

13. Air Quality

13.1. Existing Conditions

The U.S. Environmental Protection Agency (USEPA) established the National Ambient Air Quality Standards (NAAQS) for six principal pollutants: carbon monoxide (CO), nitrogen dioxide (NO2), ozone (O3), lead, particulate matter (PM), and sulfur dioxide.[77] These standards are classified as primary or secondary standards, per the EPA website[77]. Primary standards provide public health protection, including protecting the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

Areas that exceed the thresholds of any principal pollutant are called "non-attainment" areas for the pollutant. Suffolk County is a moderate non-attainment area for ozone (2008 standard).[78] The designation for the 2015 Ozone NAAQS is currently pending, though the NYSDEC has recommended non-attainment status; the EPA is expected to issue final designation by October 1, 2017.[79] The 2015 NAAQS for ozone lower the 8-hour threshold from 0.075 ppm (the 2008 primary and secondary standard) to 0.070 ppm. The closest NYSDEC air quality monitoring station for ozone is in Farmingdale in the Town of Babylon. Ozone levels are typically highest when the weather is hot, humid, and calm (little to no wind). According to the NYSDEC website,[80] the 2015 ozone standard was only exceeded four (4) days out of the year 2016, and as of May 12, 2017, the measured ozone levels have not exceeded the 2015 standard. Based on this, the air quality near the Flowerfield site typically does not pose health concerns.

As part of the "Long Island area," Suffolk County is a maintenance attainment area for PM-2.5 (fine particulate matter) and for carbon monoxide (CO).[81] The term "maintenance attainment" is another way to describe "attainment with a maintenance plan, for areas that used to be classified as non-attainment areas." Maintenance areas meet the NAAQS by demonstrating air quality monitoring, modeling, controls, and contingency plans to the satisfaction of the USEPA. For Suffolk County, maintenance attainment is under the New York Metropolitan Area (NYMA) carbon monoxide (CO) limited maintenance plan

[77] USEPA NAAQS standards and descriptions, accessed via https://www.epa.gov/criteria-air-pollutants/naaqs-table
[78] Current Nonattainment Counties for All Criteria Pollutants (New York counties) accessed via https://www3.epa.gov/airquality/greenbook/ancl.html#NY
[79] NYSDEC Designation Recommendations for the 2015 Ozone NAAQS, accessed May 12, 2017 via http://www.dec.ny.gov/chemical/108008.html
[80] NYSDEC High Ozone Values During 2017, 8-Hour Averages, and 2016 High Ozone Values data table, both accessed May 12, 2017 via http://www.dec.ny.gov/chemical/38377.html
[81] USEPA Status of New York Designated Areas, accessed May 12, 2017 via https://www3.epa.gov/airquality/urbanair/sipstatus/reports/ny_areabypoll.html

(LMP)[82] and the NY State Implementation Plan: Infrastructure Assessment for the 2012 Annual PM2.5 NAAQS Pursuant to Sections 110(a)(1) and (2) of the Clean Air Act.[83]

13.2. Potential Impacts of Proposed Subdivision

The subdivision will not generate high traffic volumes (as discussed in Section 9 starting on page 9-1) and does not include land uses which tend to generate large numbers of trucks on a regular basis. The proposed land uses will not create a new point source for pollutants, and is not expected to incur activities which might create air quality impacts.

Short-term air quality impacts may occur during construction, associated with construction vehicle exhaust, trucks raising dust, earthwork/clearing/grading operations, etc. Any construction on this property will be governed by a Stormwater Pollution Prevention Plan (SWPPP) that will include Erosion and Sediment Control (ESC) to minimize such impacts (e.g. by preventing the propagation of dust off-site). ESC elements may include silt fences, hay bales, a gravel or crushed-stone construction entrance/exit with a wash-down area, and/or sandbags to protect inlets. Typically, the Town would require regular SWPPP inspections as an oversight measure, to ensure that all ESC requirements are carried out as planned. Therefore, construction phase air quality impacts will be minimized as an inherent part of the planning process. Any unavoidable construction phase impacts would be temporary and will end once the work is completed.

13.2.1. NYSDOT Air Quality Comments

NYSDOT made the following comments in a letter dated July 3, 2018:

"a. If the intersections of NY 25A with Mills Pond Road and Stony Brook Road are to become signalized, include an air quality screening for Carbon Monoxide and other pollutants in the Draft EIS, using procedures in the NYSDOT Environmental Manual. The screening should include years ETC (2020), ETC+10 (2030), and ETC+20 (2040). The Traffic Impact Study should extend the traffic volume projections to include 2030 and 2040, so the project DEIS can include air quality screening results for those years.

b. If modifications to signalized intersections on Stony Brook Road that include new turning lanes with traffic queues are proposed, include an air quality screening for Carbon Monoxide and other pollutants in the Draft EIS, using procedures in the NYSDOT TEM. The screening should include years ETC (2020), ETC+10 (2030), and ETC+20 (2040). The Traffic Impact Study should extend the traffic volume projections to include 2030 and 2040, so the project DEIS can include air quality screening results for those years.

[82] NYSDEC NY Metropolitan Area Carbon Monoxide Limited Maintenance Plan for 2012-2022 - Final Submission, accessed May 12, 2017 via http://www.dec.ny.gov/chemical/91042.html
[83] NYSDEC Infrastructure Assessment for the 2012 Annual PM2.5 NAAQS accessed May 12, 2017 via http://www.dec.ny.gov/chemical/107187.html

c. Page 3-2: The traffic impact study was extended to the intersections of NY 347 with Moriches Road and with Stony Brook Road. These signalized intersections are about 1.5-2.0 miles from the proposed subdivision location. Air quality levels at these intersections were evaluated earlier as part of the NY 347 Safety and Mobility Project Final Environmental Impact Statement in 2005-07. The evaluation included a Carbon Monoxide (CO) screening for both intersections, and a microscale CO analysis for the intersection of NY 347 and Stony Brook Road, for years 2015, 2025 and 2035. The FEIS concluded that the project would not cause air quality impacts at these locations."

Comment "c" does not require analysis. In response to comments "a" and "b," Cameron Engineering conducted an Air Quality Analysis Screening for carbon monoxide. In the NYSDOT Environmental Procedures Manual (EPM), there are two levels of criteria for determining whether and where pollutant analyses are warranted.

First, the pollutant must fall into one of two categories: (1) it is associated with vehicular traffic (when the site use itself will not generate pollutants), and (2) it is typically studied on the local (as opposed to the regional) level. Of the pollutants in the NAAQS, only nitrogen oxides, hydrocarbons, ozone, and carbon monoxide are associated with vehicular emissions. Nitrogen oxides and hydrocarbons are important on a regional level, as opposed to individual projects. Therefore, only carbon monoxide remains as a potential subject pollutant.

Next, the EPM has a three-step secondary procedure to determine what intersections might warrant air quality screening of the pollutants that pass the above test, based on meeting all three criteria. This second level of screening determines which study intersections should be considered for micro-scale CO emissions analysis, based on conditions during the AM, PM, and Saturday Build peak hours.

A) Level of Service (LOS) Screening

This first step screens intersections based on their peak hour LOS. Only signalized intersections that will operate at LOS D, E, or F proceed to the next level of screening.

The DEIS Traffic Study includes seventeen (17) study intersections, four of which meet the criteria of the NYSDOT comments:

- Route 25A at Mills Pond Road
- Route 25A at Stony Brook Road
- Stony Brook Road at South Drive
- Stony Brook Road at Oxhead Road

All four of these intersections will operate at LOS C or better during every 2020 Build or 2020 Mitigated Build peak hour analysis. See Table 13-1 on the next page.

Table 13-1: CO Screening Level 1 (2020 Build)

Intersection *Peak*	*AM*	*PM*	*Saturday*
NYS Route 25A and Mills Pond Road	B	C	B
NYS Route 25A at Stony Brook Road	B	C	B

Stony Brook Road at South Drive	C	C	B
Stony Brook Road at Oxhead Road	C	B	B

None of the intersections pass through to the next screening level, and therefore, Build conditions will not incur the need to do a microscale CO analysis.

It should be noted that 2020 No Build conditions at each of these four intersections include LOS F (congested) operation during at least one peak hour period; all four intersections will be improved as a result of the subdivision, addressing existing/No Build LOS F congestion on multiple approaches.

Since 2020 No Build conditions will operate at LOS F at approaches to these intersections, 2030 and 2040 No Build conditions will inherently have LOS F operation as well, with associated excess vehicle emissions from lengthy stoppages.

The proposed subdivision will mitigate these conditions and improve overall and targeted (side street) traffic flow through each of these intersections; this will in turn minimize vehicle emissions, as a result of the subdivision. The subdivision is therefore not expected to create impacts on air quality or impact CO attainment status, based on the 2020 analyses in the traffic study.

Cameron Engineering then prepared additional worst-case peak hour Build analyses for the years 2030 and 2040 to address the rest of the NYSDOT comment. These projections are based on reasonable ambient growth rates: 0.5% from 2020 to 2030, and 0.2% from 2030 to 2040, with the potential railroad grade crossing re-opened in 2040. This is reasonable for a subdivision whose land use mix and density will be determined in the future and for potential conditions more than twenty years away.

In fact, it is conservative to increase traffic volume projections, based on NYSDOT estimates for the AADT (Average Annual Daily Traffic) on Route 25A' have actually decreased over time.

- Traffic Data Viewer data[84]: Year 2015 AADT is lower than the AADT based on actual counts taken on the section of Route 25A between Moriches Road and Stony Brook Road in 2007. Below are excerpts of the 2015 projected AADT (17,280 vehicles per day) compared with the AADT based on actual 2007 counts (9,317 + 8,303 = 17,620 vehicles day). The corresponding annual rate of change is negative: -0.24% per year.

[84] Accessed via the Traffic Data Viewer, a GIS web application (https://www.dot.ny.gov/tdv) to view AADT and traffic reports for individual road segments, calculated by the NYSDOT Highway Data Services Bureau.

Average Daily Traffic

Most Recent Volume :	Open Report - 2007
Most Recent Class :	Open Report - No Class
Most Recent Speed :	Open Report - No Speed
Station ID :	07_0053
Continuous Count Site ID :	
Roadway Name :	25A
Roadway Type :	Route
Station Start :	MORICHES RD
Station End :	STONY BROOK RD
Municipality :	TOWN OF SMITHTOWN
Current AADT :	17280
Current AADT Type :	FORECAST
Current Year :	2015
Data Available for Station :	VOLUME

2015 Estimated AADT (left): 17,280

2007 Estimated AADT (below): 9,317 + 8,303 = 17,680

Negative growth rate over 8 years: -0.24%

ESTIMATED (one way)	ESTIMATED (one way)
AADT **9317**	**AADT** **8303**
COUNTY: **Suffolk**	COUNTY: **Suffolk**
DATE OF COUNT: **04/10/2007**	DATE OF COUNT: **04/10/2007**

- Traffic Data Report data[85]: Year 2014 AADT is lower than the Year 2004 AADT in this area (see below). For sections west, near Edgewood Avenue, the historical 2004-2014 growth corresponds to 0.5% per year from 2004-2014.

The projected increases for No Build volumes are therefore conservative.

Excerpt of NYSDOT Traffic Data Report (PDF page 167):

	LATEST COUNT		PREVIOUS COUNTS					
	EST AADT	YR	EST AADT	YR	EST AADT	YR	EST AADT	YR
RR OVERPASS	29641	14	29267	08	40965	04	41475	03
T/SMITHTOWN - V/OFTHEBRANCH	24087	14	24087	14	46468	04	30894	00
EDGEWOOD AVE	17157	14	17157	14	16230	04	13315	98
TOWN SMITHTOWN & VILLAGE HEAD OF HARBOR	14799	14	14418	06	19258	02	20390	98
VILLAGE OF HEAD OF HARBOR TOWN OF SMITHTOWN	18041	14	17691	07	18940	04	20689	98

Accounting for signal timing adjustments at some locations (reasonable for a managing entity to undertake over a 10-20 year period), the four intersections will operate at LOS C, so they will not pass through to the next level of screening.

[85] Accessed via the latest available (2014) NYSDOT *Traffic Data Report* (page 167) showing historical AADTs for sections of Route 25A.

Table 13-2: CO Screening Level 1 (2030 Build / 2040 Build)

Intersection *Peak Hour:*	*AM 2030/2040*	*PM 2030/2040*	*Saturday 2030/2040*
NYS Route 25A and Mills Pond Road	C / C	C / C	C / C
NYS Route 25A at Stony Brook Road	B / B	C / C	B / B
Stony Brook Road at South Drive	C / C	C / C	B / B
Stony Brook Road at Oxhead Road	C / C	C / C	B / B

Corresponding traffic volume projections are shown on the next page.

13.3. Proposed Mitigation

Since the project is not expected to create significant adverse impacts as described above, it is the applicant's opinion that no mitigation is required beyond what will be implemented as part of the eventual SWPPP. As discussed, a SWPPP includes Erosion and Sediment Control measures that will prevent or mitigate off-site dust propagation.

2030 and 2040 PM Peak Hour levels of service

PM Peak Hour has the highest volumes and represents the critical period

Level of Service for CO Screening - NYS Route 25A and Mills Pond Road *Considers LIRR Crossing Open*

PM Peak Hour	2020 Build - Signalized			2030 Build - Signalized			2040 Build - Signalized		
Movement	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
Northbound Left	40.1	0.26	D	45.9	1.01	F	34.3	0.97	C
Right	47.3	0.70	D	6.3	0.06	A	4.8	0.06	A
Eastbound Thru	17.1	0.83	B	74.8	0.88	E	58.0	0.85	E
Right	0.0	0.00	A	5.7	0.67	A	5.0	0.68	A
Westbound Left	18.0	0.58	B	77.1	0.80	E	114.6	0.95	F
Through	6.3	0.65	A	47.4	0.57	D	57.4	0.71	E
INTERSECTION	*15.0*		*B*	*34.1*		*C*	*29.4*		*C*

Level of Service for CO Screening - NYS Route 25A and Stony Brook Road

PM Peak Hour	2020 Build - Signalized			2030 Build - Signalized	2040 Build - Signalized		
Stony Brook Rd Left	64.1	0.93	E	Not necessary - if 2020 and 2040 are both LOS C, 2030 will also be LOS C	80.0	0.96	E
Stony Brook Rd Right	0.0	0.00	A		0.0	0.00	A
North/East 25A Thru	34.3	0.95	C		55.2	1.01	F
North/East 25A Right	0.0	0.00	A		0.0	0.00	A
South/West 25A Left	66.2	0.94	E		68.8	0.88	E
South/West 25A Through	10.2	0.68	B		11.9	0.70	B
INTERSECTION	*31.9*		*C*		*34.4*		*C*

Level of Service for CO Screening - Stony Brook Road and South Drive

PM Peak Hour	2020 Build - Signalized			2030 Build - Signalized	2040 Build - Signalized		
Westbound Left	34.8	0.93	C	Not necessary - if 2020 and 2040 are both LOS C, 2030 will also be LOS C	41.0	0.96	D
Right	14.5	0.40	B		14.2	0.41	B
Northbound Thru	24.0	0.58	C		26.6	0.63	C
Right	4.2	0.33	A		4.1	0.35	A
Southbound Left	30.6	0.72	C		43.7	0.83	D
Through	21.3	0.74	C		25.6	0.80	C
INTERSECTION	*23.0*		*C*		*27.3*		*C*

Level of Service for CO Screening - Stony Brook Road and Oxhead Road

PM Peak Hour	2020 Build - Signalized			2030 Build - Signalized	2040 Build - Signalized		
Westbound LR	44.2	0.84	D	Not necessary - 2020 is 0.1 seconds from LOS C, and 2040 is LOS C, so 2030 will be LOS C	59.4	0.92	E
Northbound TR	27.1	0.90	C		30.1	0.92	C
Southbound Left	14.7	0.67	B		17.8	0.74	B
Through	10.1	0.79	B		11.6	0.83	B
INTERSECTION	*19.9*		*B*		*23.6*		*C*

Trip Distribution & Assignment (If no Railroad Crossing)

Growth Factor: 1.1% for 13 years, to 2030
13-year multiplier: 1.086

Passby Percentages
0% Weekday
0% Weekend

Existing volumes x 1.033 to show 3 years of ambient growth	Total Site-wide		
	AM	PM	SAT
	242	162	159
	87	336	132
	329	497	291

The other intersections operate at LOS C in 2020 and 2040, so they operate at LOS C in the 2030 Build scenario as well

AM PHF	PM PHF	SAT PHF	Dir.	Mvmt.	2030 No Build Volumes AM	PM	SAT	Total Site Traffic AM	PM	SAT	2030 Build Volumes AM	PM	SAT	2030 Approach Volumes AM	PM	SAT	% Increase over No Build (2030) AM	PM	SAT
Mills Pond Road and NYS Route 25A																			
Peak hours start at			NB	Left	15	53	38	20	73	30	35	126	68	177	336	218			
745	1630	1230		Right	95	177	117	47	33	33	142	210	150						
			EB	Thr	1,006	1,189	689	53	36	36	1,059	1,225	725	1,119	1,284	784		PM	
				Right	60	59	59	0	0	0	60	59	59					LOS C	
Hourly Peak Hour			WB	Left	57	109	144	118	77	74	175	186	218	1,136	1,172	778			
Factors (PHFs)				Thr	961	986	560	0	0	0	961	986	560						
0.95	0.95	0.98	Intersection								2,431	2,792	1,780				9.8%	7.8%	9.7%

Table 13-3 (continued)

Trip Distribution & Assignment (Railroad Crossing Open)

Table 13-3 (continued)

Growth Factor: 1.1% for 23 years, to 2040
23-year multiplier: 1.108

Passby Percentages
0% Weekday
0% Weekend

Existing volumes x 1.033 to show 3 years of ambient growth	Total Site-wide AM	PM	SAT
	242	162	159
	87	336	132
	329	497	291

AM PHF	PM PHF	SAT PHF	Dir.	Mvmt.	2040 No Build Volumes AM	PM	SAT	Total Site Traffic AM	PM	SAT	2040 Build Volumes AM	PM	SAT	2040 Approach Volumes AM	PM	SAT	% Increase over No Build (2040) AM	PM	SAT
Mills Pond Road and NYS Route 25A																			
Peak hours start at			NB	Left	15	53	39	20	73	30	35	126	69	179	339	221		PM	
745	1630	1230		Right	97	180	119	47	33	33	144	213	152					LOS D	
			EB	Thr	1,026	1,213	703	53	36	36	1,079	1,249	739	1,140	1,309	800		retimed	
				Right	61	60	61	0	0	0	61	60	61					to get	
Hourly Peak Hour			WB	Left	58	111	146	90	61	61	148	172	207	1,128	1,178	779		LOS C	
Factors (PHFs)				Thr	980	1,006	572	0	0	0	980	1,006	572						
0.95	0.95	0.98	Intersection								2,447	**2,826**	1,800				8.6%	7.2%	8.9%
Stony Brook Road and NYS Route 25A																			
Peak hours start at			NE	Thr	694	1,020	601	4	17	7	698	1,037	608	1,149	1,550	877		PM	
745	1630	1230	25A	Right	414	366	215	36	148	54	450	514	269					LOS D	
			SW	Left	114	167	176	0	0	0	114	167	176	1,002	1,046	752		retimed	
			25A	Thr	876	871	568	12	8	8	888	879	576					to get	
Hourly Peak Hour			SB	Left	160	262	144	105	69	66	265	331	210	379	527	407		LOS C	
Factors (PHFs)			Road	Right	114	196	197	0	0	0	114	196	197						
0.95	0.97	0.94	Intersection								2,530	**3,123**	2,035				6.3%	7.7%	6.6%
Stony Brook Road and South Drive																			
Peak hours start at			NB	Thr	372	253	272	78	53	53	450	306	325	1,231	688	522			
800	1645	1230		Right	781	382	197	0	0	0	781	382	197						
			SB	Left	363	182	69	7	40	10	370	222	79	592	800	462		PM	
				Thr	193	470	339	29	108	44	222	578	383					LOS C	
Hourly Peak Hour			WB	Left	89	733	184	0	0	0	89	733	184	224	1,013	254			
Factors (PHFs)				Right	107	264	57	28	16	13	135	280	70						
0.92	0.96	0.95	Intersection								2,047	**2,500**	1,238				6.9%	8.6%	9.7%
Stony Brook Road and Oxhead Road																			
Peak hours start at			NB	Thr	949	523	354	36	24	24	985	547	378	1,024	698	471			
800	1700	1230		Right	39	151	93	0	0	0	39	151	93						
			SB	Left	104	238	137	16	57	25	120	295	162	332	1,279	573		PM	
				Thr	199	933	392	13	50	20	212	983	412					LOS C	
Hourly Peak Hour			WB	Left	45	122	76	0	0	0	45	122	76	300	251	228			
Factors (PHFs)				Right	213	100	123	42	29	29	255	129	152						
0.92	0.95	0.93	Intersection								1,656	**2,228**	1,272				6.4%	7.2%	7.6%

HCM 6th Signalized Intersection Summary
1: Mills Pond Road & NYS Route 25A

Table 13-3 (continued)

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1225	59	186	986	126	210
Future Volume (veh/h)	1225	59	186	986	126	210
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1885	1885	1900	1900
Adj Flow Rate, veh/h	1289	62	196	1038	133	168
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	1	1	0	0
Cap, veh/h	1280	1084	223	1539	166	294
Arrive On Green	0.68	0.68	0.09	0.82	0.09	0.09
Sat Flow, veh/h	1870	1585	1795	1885	1810	1610
Grp Volume(v), veh/h	1289	62	196	1038	133	168
Grp Sat Flow(s),veh/h/ln	1870	1585	1795	1885	1810	1610
Q Serve(g_s), s	82.0	1.5	8.9	27.0	8.6	11.0
Cycle Q Clear(g_c), s	82.0	1.5	8.9	27.0	8.6	11.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1280	1084	223	1539	166	294
V/C Ratio(X)	1.01	0.06	0.88	0.67	0.80	0.57
Avail Cap(c_a), veh/h	1280	1084	225	1541	166	294
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.9	6.2	44.6	4.5	53.4	44.7
Incr Delay (d2), s/veh	27.0	0.1	30.3	1.2	23.7	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	38.7	0.5	5.8	6.9	5.0	10.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.9	6.3	74.8	5.7	77.1	47.4
LnGrp LOS	F	A	E	A	E	D
Approach Vol, veh/h	1351			1234	301	
Approach Delay, s/veh	44.1			16.7	60.5	
Approach LOS	D			B	E	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	15.9	88.0		16.0		103.9
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0
Max Green Setting (Gmax), s	11.0	82.0		11.0		98.0
Max Q Clear Time (g_c+I1), s	10.9	3.5		13.0		0.0
Green Ext Time (p_c), s	0.0	0.3		0.0		0.0

Intersection Summary			
HCM 6th Ctrl Delay			34.1
HCM 6th LOS			C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1249	60	172	1006	126	213
Future Volume (veh/h)	1249	60	172	1006	126	213
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1885	1885	1900	1900
Adj Flow Rate, veh/h	1315	63	181	1059	133	161
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	1	1	0	0
Cap, veh/h	1349	1144	212	1561	140	227
Arrive On Green	0.72	0.72	0.06	0.83	0.08	0.08
Sat Flow, veh/h	1870	1585	1795	1885	1810	1610
Grp Volume(v), veh/h	1315	63	181	1059	133	161
Grp Sat Flow(s),veh/h/ln	1870	1585	1795	1885	1810	1610
Q Serve(g_s), s	76.8	1.3	5.2	25.6	8.5	9.0
Cycle Q Clear(g_c), s	76.8	1.3	5.2	25.6	8.5	9.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1349	1144	212	1561	140	227
V/C Ratio(X)	0.97	0.06	0.85	0.68	0.95	0.71
Avail Cap(c_a), veh/h	1349	1144	267	1619	140	227
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.2	4.7	39.0	3.9	53.5	47.7
Incr Delay (d2), s/veh	19.1	0.1	19.0	1.1	61.1	9.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	32.3	0.4	6.2	5.8	6.2	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.3	4.8	58.0	5.0	114.6	57.4
LnGrp LOS	C	A	E	A	F	E
Approach Vol, veh/h	1378			1240	294	
Approach Delay, s/veh	33.0			12.8	83.3	
Approach LOS	C			B	F	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	12.4	90.0		14.0		102.4
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0
Max Green Setting (Gmax), s	11.0	84.0		9.0		100.0
Max Q Clear Time (g_c+I1), s	7.2	3.3		11.0		0.0
Green Ext Time (p_c), s	0.2	0.3		0.0		0.0

Intersection Summary		
HCM 6th Ctrl Delay		29.4
HCM 6th LOS		C

HCM 6th Signalized Intersection Summary
2: 25A & Stony Brook Road

Table 13-3 (continued)

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	331	196	1037	514	167	879
Future Volume (veh/h)	331	196	1037	514	167	879
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1945	1870	1945	1870	1870
Adj Flow Rate, veh/h	341	0	1069	0	172	906
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	356		1054		195	1292
Arrive On Green	0.20	0.00	0.56	0.00	0.07	0.69
Sat Flow, veh/h	1781	1648	1870	0	1781	1870
Grp Volume(v), veh/h	341	0	1069	0	172	906
Grp Sat Flow(s),veh/h/ln	1781	1648	1870	0	1781	1870
Q Serve(g_s), s	20.8	0.0	62.0	0.0	6.4	31.9
Cycle Q Clear(g_c), s	20.8	0.0	62.0	0.0	6.4	31.9
Prop In Lane	1.00	1.00		0.00	1.00	
Lane Grp Cap(c), veh/h	356		1054		195	1292
V/C Ratio(X)	0.96		1.01		0.88	0.70
Avail Cap(c_a), veh/h	356		1054		195	1292
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	0.0	24.0	0.0	34.6	10.2
Incr Delay (d2), s/veh	36.4	0.0	31.2	0.0	34.2	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.7	0.0	32.8	0.0	4.3	11.0
Unsig. Movement Delay, s/veh		0.00		0.00		
LnGrp Delay(d),s/veh	80.0	0.0	55.2	0.0	68.8	11.9
LnGrp LOS	E	A	F	A	E	B
Approach Vol, veh/h	491	A	1599	A		1078
Approach Delay, s/veh	55.5		36.9			21.0
Approach LOS	E		D			C

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	14.0	68.0				82.0		28.0
Change Period (Y+Rc), s	6.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	8.0	62.0				76.0		22.0
Max Q Clear Time (g_c+I1), s	8.4	64.0				33.9		22.8
Green Ext Time (p_c), s	0.0	0.0				4.9		0.0

Intersection Summary	
HCM 6th Ctrl Delay	34.4
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is included in calculations of the approach delay and intersection delay.

Table 13-3 (continued)

Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	733	280	306	382	222	578	
Future Volume (veh/h)	733	280	306	382	222	578	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	764	292	319	398	231	602	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	800	711	503	1138	280	754	
Arrive On Green	0.45	0.45	0.27	0.27	0.05	0.40	
Sat Flow, veh/h	1781	1585	1870	1585	1781	1870	
Grp Volume(v), veh/h	764	292	319	398	231	602	
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870	
Q Serve(g_s), s	30.8	9.3	11.2	7.0	4.0	21.1	
Cycle Q Clear(g_c), s	30.8	9.3	11.2	7.0	4.0	21.1	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	800	711	503	1138	280	754	
V/C Ratio(X)	0.96	0.41	0.63	0.35	0.83	0.80	
Avail Cap(c_a), veh/h	814	724	503	1138	280	754	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	19.8	13.9	24.0	4.0	25.6	19.5	
Incr Delay (d2), s/veh	21.2	0.4	2.6	0.2	18.1	6.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	16.1	3.1	5.1	6.5	3.5	9.6	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	41.0	14.2	26.6	4.1	43.7	25.6	
LnGrp LOS	D	B	C	A	D	C	
Approach Vol, veh/h	1056		717			833	
Approach Delay, s/veh	33.6		14.1			30.6	
Approach LOS	C		B			C	
Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	10.0	26.0				36.0	38.4
Change Period (Y+Rc), s	6.0	6.0				6.0	5.0
Max Green Setting (Gmax), s	4.0	20.0				30.0	34.0
Max Q Clear Time (g_c+I1), s	6.0	13.2				23.1	32.8
Green Ext Time (p_c), s	0.0	2.0				2.2	0.6
Intersection Summary							
HCM 6th Ctrl Delay			27.3				
HCM 6th LOS			C				

Table 13-3 (continued)

Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	122	129	547	151	295	983	
Future Volume (veh/h)	122	129	547	151	295	983	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1976	1976	1945	1870	1870	1870	
Adj Flow Rate, veh/h	128	136	576	159	311	1035	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	0	0	2	2	2	2	
Cap, veh/h	140	148	627	173	418	1250	
Arrive On Green	0.17	0.17	0.43	0.43	0.15	0.67	
Sat Flow, veh/h	841	894	1467	405	1781	1870	
Grp Volume(v), veh/h	265	0	0	735	311	1035	
Grp Sat Flow(s),veh/h/ln	1742	0	0	1872	1781	1870	
Q Serve(g_s), s	9.9	0.0	0.0	24.6	5.5	27.3	
Cycle Q Clear(g_c), s	9.9	0.0	0.0	24.6	5.5	27.3	
Prop In Lane	0.48	0.51		0.22	1.00		
Lane Grp Cap(c), veh/h	289	0	0	800	418	1250	
V/C Ratio(X)	0.92	0.00	0.00	0.92	0.74	0.83	
Avail Cap(c_a), veh/h	289	0	0	960	499	1494	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	27.2	0.0	0.0	17.9	12.9	8.2	
Incr Delay (d2), s/veh	32.2	0.0	0.0	12.1	4.9	3.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	6.5	0.0	0.0	12.0	2.3	8.6	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	59.4	0.0	0.0	30.1	17.8	11.6	
LnGrp LOS	E	A	A	C	B	B	
Approach Vol, veh/h	265		735			1346	
Approach Delay, s/veh	59.4		30.1			13.0	
Approach LOS	E		C			B	
Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	16.0	34.3				50.3	16.0
Change Period (Y+Rc), s	6.0	6.0				6.0	5.0
Max Green Setting (Gmax), s	13.0	34.0				53.0	11.0
Max Q Clear Time (g_c+I1), s	7.5	26.6				29.3	11.9
Green Ext Time (p_c), s	0.5	1.8				9.7	0.0

Intersection Summary	
HCM 6th Ctrl Delay	23.6
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

14. Noise

14.1. Existing Conditions

The existing site is characterized by light industrial use on 18.20 acres and the Flowerfield catering hall on ±12.94 acres of the property; the remainder of the site is vacant. The primary exterior noise sources are the vehicle and truck trips at the driveways and the associated vehicle movements on the site. Indoor noises reflect typical office/light industrial uses and periodic events at the catering hall that often include music.

14.2. Potential Impacts of Proposed Subdivision

Short-Term (Construction-Related) Impacts

Construction of buildings, interior roads, parking lots, and associated infrastructure/utilities will involve on-site clearing, grading, excavation, and associated functions that will generate short-term noise. Said activities will occur during limited timeframes and will follow the stipulations of Town Code §207 (Noise)[86], which will minimize the potential for significant impacts. Noise limitations include limits on work hours, work days, and idling times for large vehicles. Construction will be restricted to the hours of 7:00 a.m. to 6:00 p.m. on weekdays, except for emergency work or for activities that are quieter than the limits in the Town's Noise Control Table 1[86] (excerpted below).

NOISE CONTROL TABLE I

Maximum Permissible A-Weighted Sound Pressure Levels by Receiving Property Category, in Dba [Amended 10-7-2003]

	Receiving Property Category			
Sound Source Property Category	**Residential, 7:00 a.m. to 10:00 p.m. (dBA)**	**Residential, 10:00 p.m. to 7:00 a.m. (dBA)**	**Commercial, all times (dBA)**	**Industrial, all times (dBA)**
Residential	45	40	65	70
Commercial or public lands or rights-of-way	55	45	65	70
Industrial	55	45	65	70

Town code limits vehicles with a gross vehicle weight rating (GVWR) above 10,000 pounds from idling more than five minutes in any hour within 150 feet of a residential area between 10:00 p.m. and 8:00 a.m., except for emergency purposes, or for traffic congestion on a public right-of-way or public space. It is expected that this only pertains to limited areas of the property on Lot 3 and Lot 4 that are within 150 feet of parcels zoned R-43.

Construction noise will therefore be short-term, temporary, and controlled with respect to noise generation.

Long-Term (Occupancy) Impacts

The existing uses and their associated activities would remain. The new land uses will generate moderate increases in ambient noise associated with incremental traffic

[86] Town of Smithtown Noise ordinance §207 (Noise) accessed via http://ecode360.com/15100070 on May 17, 2017

generation on local roads, property maintenance activity (snow removal, landscaping), and services (solid waste removal, deliveries). These activities already occur on the property in the developed sections and in the areas with managed landscaping. It is the applicant's opinion that the new uses will not add to the types of noise sources, nor will they establish ongoing outdoor activities that would generate noticeable ambient noise. It is the applicant's opinion that the proposed land uses (hotel, general-medical office, and assisted living) do not regularly generate noticeable outdoor activity, like (for example) outdoor restaurants or heavy industrial uses can. Further, it is the applicant's opinion that the types of outdoor activity that would occur are expected during typical weekday daytime hours. As such, it is the applicant's opinion that the proposed uses will fit the character of the area with respect to when sound generation would be highest.

Typical sound levels for wooded residential areas are in the range of 50 dBA[87] and in the range of 60 dBA for commercial areas and busier residential areas. It is expected that the proposed uses will generate sound levels within these ranges during daytime hours. Except for weekday and Saturday daytime hours and some weekday evenings, the medical offices would generally be closed and would not generate any noise. The assisted living units would generate limited to no noise overnight, similar to residential uses, just with less vehicle traffic, per Appendix F: Traffic Impact Study. The hotel would operate 24/7 but would also have limited overnight noise generation, similar to residential uses in that regard.

The proposed uses would be held to the Town's noise control standards, which prohibit certain activities and limit certain noises to specific timeframes, based on the Town's "Noise Control Table 1"[86]. Additionally, the proposed subdivision layout maintains lengthy setbacks from the adjacent roads and the nearest existing off-site buildings. The nearest lots to Route 25A and Mills Pond Road will be Lots 4, 5, and 6.

According to the Cameron Engineering Subdivision Plan, the building on Lot 4 would be ±360 to 650 feet from Mills Pond Road, the nearest home across Mills Pond Road, and Route 25A. The building on Lot 5 (the northern medical office lot) would be ±450 to 640 feet from Route 25A and the nearest building. The building on Lot 6 (the northern assisted living lot) would be ±215 to 330 feet from Route 25A and the nearest building. The eventual building layouts may change somewhat, but not significantly, because any new buildings must be beyond required buffers and setbacks from the adjacent roads, residential uses, and pond.

[87] USEPA, Protective Noise Levels (1979) Figure 4: Examples of Outdoor Day-Night Average Sound Levels in dB Measured at Various Locations, accessed via http://www.nonoise.org/library/levels/levels.htm.

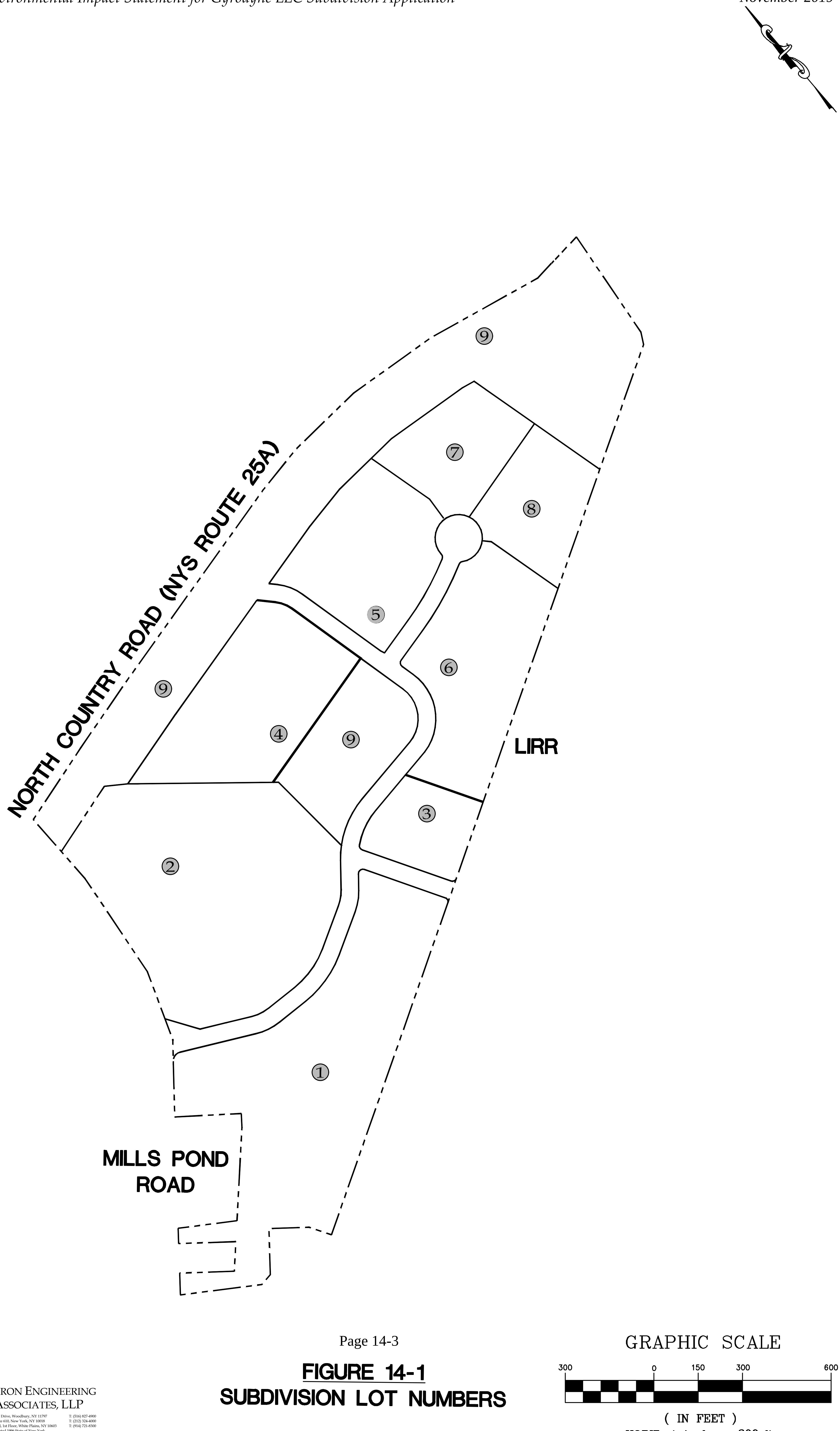


FIGURE 14-1
SUBDIVISION LOT NUMBERS

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The preliminary STP design includes a sanitary pump station for the Lot 2 catering hall, sited on a 20’ x 40’ concrete pad, with most of its infrastructure underground. Only a control panel and emergency generator (which would not be regularly utilized) would be above grade. The pad will be ±180 feet from Mills Pond Road and ±205 feet from Route 25A, so the pump station will be too far to incur noise impacts off-site because sound pressure decreases with distance (known as the “inverse square law”). For example, if the generator emitted 80dB (which is louder than genuinely anticipated) at a distance of 10 feet, at the distance of 180 feet, the perceived sound level would be just under 55 dB, similar to a quiet conversation.[88] To summarize, it is the applicant’s opinion that no significant long-term noise impacts are anticipated because construction will follow Town code, because the proposed subdivision uses are not expected to generate loud noises outside each building, and because the proposed buildings will be set back significantly from the adjacent roads and nearest existing buildings. Additionally, the anticipated types of noise are similar to what occurs on the property today (e.g. traffic generation, snow removal) and there will not be peak sound generation overnight or on weekends.

14.3. Proposed Mitigation

Because of the building and STP setbacks, the anticipated limited outdoor activity and timing of outside activity occurring during typical daytime hours, it is the applicant’s opinion that no mitigation is required.

[88] The difference in sound level between two points is equal to 20 multiplied by the log of the quotient of the two distances: 20 x log (Distance 2 / Distance 1) = 20 x log (180 / 10) = 20 x the log of 18 (which is 1.26) = 25.1 dB. The change of 25.1 dB is 54.9 dB below the initial 80dB sound pressure.

15. Visual Impacts

15.1. Existing Conditions

The Flowerfield property has significant road frontage. There is approximately 0.51 miles (2,700 feet) of road frontage along NYS Route 25A, a designated historic corridor also known as 'The Washington Spy Trail'. The existing conditions of the Route 25A corridor along the Flowerfield property has a pastoral character with a combination of farmland along much of the westerly side of Route 25A (Note: farmland transitions to single family residences north of Shep Jones Lane) and the heavily vegetated buffer along the Flowerfield property (easterly side of Route 25A). The Flowerfield property also has approximately 0.34 miles (1,770 feet) of road frontage along Mills Pond Road. Similar to Route 25A, the Mills Pond road corridor has a pastoral character. There are no sidewalks or curbing and the road is heavily vegetated along both sides. In general, the architectural style of the area is colonial, or a more modern interpretation of the colonial style.

The site is generally screened by evergreens on Route 25A and Mills Pond Road. The extent of views into the Flowerfield property is generally limited due to heavy underbrush and lower vegetation along and adjacent to the property fencelines on Route 25A and Mills Pond Road. The Visual Simulation, which is described in greater detail in Section 15.2, and included in full in Appendix K: Visual Simulation, provides additional photographs documenting the influence of seasonal changes and the influence of on views into the property (i.e., whether deciduous trees and shrubs are leaved).

The current lighting is generally comprised of street lighting along the surrounding roads and within the currently utilized portions of the property

15.2. Potential Impacts of Proposed Subdivision

The Map of Flowerfield has been designed with minimal disturbance and visual change to the entire road frontage of Route 25A and Mills Pond Road. Along the 0.51 miles of road frontage of Route 25A, only 106 feet will be disturbed for the construction of a limited access (right turns in and right turns out) into the Flowerfield campus. A visual rendering of this proposed site access road is provided below.

Figure 15-1: Site Access Rendering

Along Mills Pond Road, one existing site driveway will be widened and improved with disturbance limited to the immediate area. A key focus of analyzing potential visual impacts was determining to what extent future buildings would be visible from Route 25A and Mills Pond Road. Within the Flowerfield campus, the subdivision plan incorporates multiple “green” approaches as further described in this section. The site development plans that will eventually be prepared for individual lots would be encouraged to build upon the below design approach, with extensive use of landscaping treatments and proper setbacks to create/maintain the visual buffers around existing/new buildings.

Campus signage would be limited to two ground monument-style signs at each driveway entrance (Mills Pond Road and Route 25A). These signs would be located out of the State right-of-way and limited to approximately five feet in height. Campus signs would comply with height and size regulations set forth in §322 Article X (‘Signs’) and §322 Attachment 5 (‘Schedule of Sign Regulations’).

The main viewshed of the site is from Route 25A, which will have a maintained 200-foot landscaped buffer. The existing buffers along Mills Pond Road will not change, because none of the new development lots are adjacent to Mills Pond Road.

Special attention has been paid in the subdivision plan to be compatible with the surrounding area. A 200-foot wide buffer shall be maintained on the northern stretch along Route 25A. The buffer consists of the existing evergreen trees and will be supplemented with additional native trees, shrubs and wildflowers. Most existing trees will be protected and remain in place. Within the campus property as well, hundreds of mature evergreen trees/ hedgerows will be preserved, and about 20 acres of successional field, meadow and the freshwater pond will remain in place. The proposed landscape plantings will utilize indigenous trees, shrubs and groundcovers and strategically augment the existing landscape along the proposed campus roadways, campus entrances and reinforcement of buffers along Route 25A and Mills Pond Road.

Within the campus property (inside the buffer), hundreds of mature evergreen trees/ hedgerows will be preserved, and about 20 acres of successional field, meadow, and the freshwater pond will remain in place. The proposed landscape plantings within the property will utilize indigenous trees, shrubs, and groundcovers, and will strategically augment the existing landscape along the proposed campus roadways, campus entrances, and reinforcement of buffers along Route 25A and Mills Pond Road.

The proposed interior roads will have dedicated bike lanes, vegetated swales and tree-lined corridors to provide a campus environment and character, also providing traffic calming benefits and connectivity benefits to the surrounding road network. The dedicated bike lanes proposed on the campus roads will have direct connectivity to bike routes on 25A and Mills Pond Road.

Similar to existing hedgerows on the property, proposed tree plantings will frame open space areas and provide "classic" tree canopies framing the interior roadways. The proposed plant list will include a mix of both native plants and ornamental plants. No invasive plantings will be introduced.

The interior street tree plantings and foundation plantings will consist of both nursery-grown ornamental and native plantings. The introduction of native/indigenous plantings (trees, shrubs and groundcovers) is proposed to promote wildlife and reduce dependence on irrigation, fertilizers, and pesticides

The design intent is also to create green spaces connected through the lots. About two (2) miles of walking trails and nature trails are designed within the expansive open space areas to be preserved. These open space areas will be open to the public. Additionally, several parking areas shall be designated as land banked parking (see Section 9.3) to increase the green area on the property.

The pond area will be integrated as a major component of the landscape and stormwater management system. Aesthetic improvements of the pond area would enhance views of the lake.

For purposes of the visual analysis and the anticipation that all new buildings would satisfy Town code, the maximum building height would be 35 feet. There is no specific limit on the number of stories for buildings in the LI zone; a 35-foot building typically corresponds to three stories.

At this preliminary stage, the landscaping and lighting designs are not yet complete, but initial design concepts are integrated into the subdivision plan.

With respect to lighting, although the interior roads will likely be privately owned and maintained, the applicant expects street lighting will follow or approximate Town Code §248-41,[89] which designates street light installation at "every street intersection…every cul-de-sac…every other property line," with ±150-200 foot separation between light poles.

The lighting plan will be designed for safety: with the necessary foot-candle values along interior roads, sidewalks, and around the buildings, and without superfluous brightness. Additional site lighting would be aimed to highlight aesthetic elements of the buildings

[89] Town Code, Public Utilities: Standards and Features, accessed via http://ecode360.com/15101607

and/or landscaping. Lighting fixtures would be chosen for aesthetics and for energy savings; the applicant expects that LEDs (Light Emitting Diodes) will be considered, which minimizes electricity demand and minimizes potential glare. Also, while the Town does not yet have a "dark skies" zoning ordinance, on-site lighting would be shielded and configured to avoid light spillover onto the adjacent roadways/properties.

As shown on the Cameron Engineering Preliminary Subdivision Plan, the potential building setbacks would be as follows:

Table 15-1: Building Setbacks

Lot No.	Route 25A Setback	Mills Pond Road Setback
1 and 2 (existing light industrial & catering)	No change	No change
4 (hotel)	± 365 feet	± 560 feet (further than the catering hall)
5 and 6 (medical/R&D office)	± 450 feet minimum	± 1,300 feet minimum
7 and 8 (assisted living)	± 210 feet minimum	± 1,800 feet minimum

Additionally, the buildings on Lots 7 and 8 are at least ± 630 feet from the property line to the east, and they are at least 140 feet from the LIRR tracks.

<u>Visual Impact Simulation: Summer/Winter</u>
To provide a more detailed analysis of potential visual impacts, the proposed Gyrodyne subdivision was analyzed from the perspective of various users – including drivers, bicyclists, and pedestrians. This complete visual impact simulation is provided in Appendix K.

Methodology for this analysis entailed a visual analysis performed by identifying different view sheds on the road corridor. The view sheds were photographed and analyzed in winter-early spring months before the trees leaved and again in summer after the leafing. The analysis was based on representation of views into the site while driving/ walking or biking on the roadway in both directions. Generally, the plant overgrowth and rows of evergreen tree plantings along the Route 25A corridor and Mills Pond Road screen the views into the site. However, select areas had some gaps within the planting, providing partial views into the property. As a result, further analysis of these areas was performed representing views when a bicyclist or pedestrian or passenger in a vehicle is standing on the opposite side of the road and views into the site at a right angle or at a 45-degree angle. A key map identifying the various vantage points and perspectives for the visual simulation is provided in Figure 15-7 at the end of this section.

As discussed above, the primary visual impact associated with the proposed action would be the construction of the site access driveway off Route 25A (see Figure 15-1). Proposed buildings on-site are generally screened and/or set back from property lines enough to not be visible. However, under certain seasonal conditions, it will be possible to see portions of the buildings from Route 25A. These selected viewsheds are provided below, along with an explanation of anticipated visual impacts at each location.

Figure 15-2: Viewshed E – Mitigated Built Condition at 45° View

Figure 15-2 shows a 45-degree view (traveling north) into the Flowefield site from Route 25A during the winter months. The built masses are not visible from the road while driving or walking/biking based on a tangential view angle. However, if a bicyclist/pedestrian or a passenger in a car views the property while facing the site at a 45-degree angle, a substantial view of the proposed medical office structure is observed in the winter months. The proposed location of the medical building is over 400 feet from the road. Mitigation in the form of supplemental evergreen planting provides additional screening of the built masses. The planting in the built mitigated is shown at about five-year maturity after installation.

Figure 15-3: Viewshed E – Mitigated Built Condition at 90° View

Figure 15-3 shows a 90-degree view into the Flowerfield site from Route 25A during the winter months. The built masses are not visible from the road while driving or walking/biking based on the view angle and the row of proposed evergreen trees, however, if a bicyclist, pedestrian, or a passenger in a car views the property standing perpendicular to the property (as shown in the image), a partial view of the proposed medical office and hotel is observed in the winter months, on the sides of the main entrance driveway. Mitigation is provided in the form of flowering trees in the central median and evergreen tree plantings along the property boundary and site access driveway. The planting in the built mitigated is shown at about five-year maturity after installation.

Figure 15-4: Viewshed E – Mitigated Built Condition at 45° View

Figure 15-4 shows a 45-degree view (traveling south) into the Flowefield site from Route 25A during the winter months. As one views the proposed driveway, a limited view of the hotel structure under the branching and gaps from sparse tree growth is observed in the winter months. The proposed location of the hotel structure is over 350 feet from the road. Mitigation in the form of supplemental evergreen tree plantings provides additional screening of the built masses. The planting in the built mitigated condition is shown at about the five-year maturity after installation.

Figure 15-5: Viewshed F – Mitigated Built Condition at 90° View

Figure 15-5 shows a 90-degree view into the Flowerfield site from Route 25A during the winter months. The built masses are not visible from the road while driving or walking/biking based on the view angle and the row of evergreen trees, however, if a bicyclist/pedestrian or a passenger in a car views the property while standing across the road at 90 degrees (as shown in the image), a limited view of the proposed Assisted Living structure is observed in the winter months. The proposed location of the Assisted Living structure is over 250 feet from the road. Mitigation in the form of supplemental evergreen planting provides additional screening of the built masses. The planting in the built mitigated view above is shown at about five-year maturity after installation.

Figure 15-6: Viewshed H – Mitigated Built Condition at 45° View

Figure 15-6 shows a 45-degree view (traveling south) into the Flowefield site from Route 25A during the winter months. This view illustrates the aesthetic character at the northernmost section of the property on the Route 25A corridor while traveling south. This section has a narrow shoulder, fence line and property boundary lined with mature evergreens trees and deciduous natural growth underneath which provides screening. Some gaps are seen while travelling south in the winter, but the site elevation is substantially higher than street elevation which provides additional screening to the property. The elevation difference and evergreen planting provide sufficient screening of the site from the road level; hence no change is observed after development. Supplemental evergreen planting is proposed in this area, as shown in the image to further enhance the screening.

Other disturbances to the site along Route 25A would be limited to the proposed drainage reserve areas and STP leaching areas. These disturbances would not result in any perceptible visual change from the surrounding road network. The proposed action would retain the existing trees between Route 25A and the drainage reserve areas, with supplemental plantings proposed to provide further screening and vegetative cover on the site. Further north, the proposed STP leaching areas would be located in an area without dense vegetation, with limited tree clearing proposed in this area. However, the existing trees along Route 25A and within the northern end of the site will be maintained, preserving the existing viewsheds from the surrounding road network. Similar to the drainage reserve areas, supplemental plantings are proposed to enhance the site’s natural buffers and existing vegetative cover.

While there is a change, the proposed views demonstrate that the change is mitigation through extensive landscape re-vegetation, monument signs are set back and done in natural materials, in a contextual design aesthetic.

Generally the plant overgrowth and rows of evergreen tree plantings along the Route 25A corridor and Mills Pond Road screen the views into the site. Select sections had some gaps within the planting, providing partial views into the property. The select sections were identified and a further analysis was done representing views when a bicyclist or pedestrian or passenger in a vehicle is standing on the opposite side of the road and views the site at right angle or at a 45 degree angle. Based on these views, the proposed building structures were superimposed as simplified architectural massing models, followed by a comparative analysis of existing conditions, built unmitigated and built mitigated conditions. Mitigation shown is in the form of additional native deciduous and evergreen plantings in the buffer to maintain the current rural character of the road corridor and provide sufficient screening of the development from the adjacent areas.

<u>Tree Clearing</u>

The Tree Preservation and Land Clearing Plan on page M-14 (sheet C-13 in the Preliminary Engineering Plans in Appendix M) depicts the tree removals for the Proposed Action. This plan is intended to depict the clearing necessary for the layout of lots, roads, and drainage structures as proposed in the Conceptual Development Plan only. Future development applications for individual lots will include the submittal and review of a site-specific Tree Preservation and Land Clearing Plan during the Site Plan Review process.

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FIGURE 15-7
VISUAL SIMULATION KEY MAP

15.3. Proposed Mitigation

As shown in the visual simulation (provided in Appendix K), the applicant anticipates there will be new planting along portions of Route 25A, with an evergreen and ornamental tree screen behind existing trees. This is anticipated to maintain the existing visual character along this roadway. For most of the property frontage, the views will be almost indistinguishable between the current and post-subdivision conditions.

At the proposed Route 25A driveway, there will be an interruption or gap in the existing landscape. The proposed buildings are primarily screened from the road (with exceptions highlighted in Section 15.2 above), and the proposed plantings (a combination of mature deciduous and evergreen plantings) will provide an aesthetic infill of new plantings across and within the entrance area. The proposed campus signage is envisioned to be a natural stone material, blending into the landscape.

The lighting has not yet been designed, but in general terms, roadway/walkway lighting will be designed for safety, and supplemental lighting will highlight visually appealing elements of the architecture and landscaping.

Additionally, the proposed building heights will comply with Town ordinance limits, and setbacks will be at least 200 feet from Route 25A and 100 feet from Mills Pond Road.

Accordingly, further mitigation beyond the proposed perimeter landscaped buffers and significant building setbacks as described above, would be anticipated to be limited to specific lot site plan applications that would proceed at a future date, subsequent to subdivision approval.

16. Historic and Cultural Resources

16.1. Existing Conditions

Historic Sites and Districts

The site is near several historic sites and districts that are listed on either the National Register of Historic Places[90] or on the Town's List of Historic Sites and Districts. The New York State Route 25A historic corridor, which is also known as the 'George Washington Spy Trail', has been nominated (H.R.3514 - Washington Spy Ring National Historic Trail Designation Act) for inclusion in the National Trails System.

Table 16-1: Area Historic Sites and Districts

Town of Smithtown Index #	Name	Address	Location
SJ 20 *	Mills Pond Road District	St. James, N.Y	Northwest corner of site
N/A**	Route 25A Historic Corridor	Route 25A	Northern boundary of site
SJ 22	Jackson/Rogers House	155 Mills Pond Road	Adjacent
SJ 24	O'Donnell/Newtown House	159 Mills Pond Road	Adjacent
SJ 25	L'Hommedieu/Gaines House	161 B. Mills Pond Road	Adjacent
SJ 26	Powell House	163 Mills Pond Road	Adjacent
NCR 3	Gyrodyne Gambrel-Roof House	Off North Country Road	South of Route 25A, East of Mills Pond Road
NCR 4	Bailey/Papadakos House	Corner of Mills Pond Road	Southeast Corner of Route 25A and Mills Pond Road

* Includes the Mills Pond Road Historic Corridor

** Route 25A is a New York State historic corridor (not included on the Town of Smithtown List of Historic Sites and Districts)

Archeological Investigation

Stage 1A, 1B, and 2 studies were performed on the subject site by the Institute of Long Island Archeology. Following this extensive survey, the only finding was a stairway that might lead to intact cellar deposits. The full text of the three survey reports are found in Appendix G.

The Stage 2 archeological evaluation studied two sites identified on the Flowerfield property. The sites are known as the Mills Pond prehistoric site (NYSM 11237, OPRHP A10345.000117) and the Mills-Smith House historic site (formerly known as the B. Bailey site, NYSM 11236, OPRHP A10345.00018). The portion of the Mills Pond prehistoric site within the Flowerfield site does not appear to be eligible for listing on the State or National Register of Historic Places. All of the recovered artifacts were found in the plowed/disturbed soils, and no further archaeological investigation was recommended for the prehistoric site.

[90] Register number 73001277; map accessed at https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466 in April 2017

Although most of historic period artifacts were found within the plowed and disturbed soils, an intact portion of the Mills-Smith House (a stairway) was found during the Stage 2 investigation (see Appendix G: Archaeological Reports). The location of the slate and brick feature probably marks the former entrance of the Mills-Smith House, and intact cellar deposits may exist adjacent to this feature. The Mills-Smith House may be eligible for listing on the National Register of Historic Places. The site is within the bounds of and is historically associated with the Mills Pond Historic District (90NR1882)[91].

16.2. Potential Impacts of Proposed Subdivision

Historic Sites and Districts
The proposed development would not be expected to affect any of these historic sites as the new development will not physically impact any of these sites and proposed structures will be generally screened from view from these sites. The portion of the project site that is within the Mills Pond Road District is currently occupied for the most part, by the existing industrial development. Site disturbance along Route 25A would be limited to the proposed site driveway, drainage reserve areas and STP leaching areas. The drainage reserve areas and STP leaching areas would be screened by both existing and proposed vegetation, with little to no visual impact on the area's historic reserouces. The proposed site driveway, located on Route 25A, would be the only site disturbance that would alter the view from the Route 25A Historic Corridor. In-depth visual analyses of this driveway are provided in Section 15.2 and Appendix K.

Archeological Investigation
None are anticipated. The historic site is located near the intersection of Route 25A and Mills Pond Road, within the 200-foot buffer along Route 25A. The proposed action would not disturb this portion of the site. Site disturbance within the 200-foot buffer will be located to the north and west of this location, and would be limited to the proposed site driveway, drainage reserve areas and STP leaching areas.

16.3. Proposed Mitigation

Historic Sites and Districts
As noted above, disturbances within the 200-foot Route 25A buffer will be limited to the proposed site driveway, drainage reserve areas and STP leaching areas. Of these three types of disturbances, only the proposed site driveway would result in a visual change from the Route 25A Historic Corridor. Existing plantings will continue to screen the proposed drainage reserve area and STP leaching areas, with supplemental new plantings to further screen these areas.

Archeological Investigation
As described above, the historic site is located near the intersection of Route 25A and Mills Pond Road, within the 200-foot buffer along Route 25A. The proposed action would not disturb this portion of the site. Site disturbance within the 200-foot buffer will be located to the north and west of this location, and would be limited to the proposed site driveway, drainage reserve areas and STP leaching areas.

[91] https://data.ny.gov/Recreation/National-Register-of-Historic-Places/iisn-hnyv/data accessed April 2017

17. Growth Inducing Impacts

Growth-inducing impacts are generally described as the long-term secondary effects of the proposed action. Specifically, with respect to growth inducement, The *SEQR Handbook* (3rd Edition) states that, "Some activities will encourage or lead to further increases in population or business activity. This type of secondary impact is called growth inducement…it is important to recognize activities which may induce growth because a consideration of the whole action must examine likely impacts of such growth, such as the need for additional sewer, water and other services; increased traffic congestion; or accelerated loss of open space."

The proposed subdivision is not envisioned as a catalyst for off-site growth. Rather, it is meant to capitalize on the opportunities for synergy with other existing uses, namely Stony Brook University, the R&D Park, and the Medical Center. The subdivision will synergize with these other uses and retain activity in the area, rather than inducing growth off-site.

The Smithtown Town Supervisor has asked Gyrodyne to build its STP with extra capacity to accommodate flow from the St. James Lake Avenue Business District. Gyrodyne LLC remains amenable to this concept. The decision will depend in part on the ongoing sewer study of the business district's flows (the study is being done by a private consulting firm). The request for additional STP capacity is not a component of the subdivision application, so the subdivision would not induce off-site growth.

Gyrodyne notes that if SCDHS limits are capping the business district's potential yield or use mix, sewering the sanitary flow could induce infill development. This should be incorporated into the district's sewer study being done by others.

18. Irretrievable and Irreversible Commitment of Resources

This section pertains to resources that can not be recovered or reversed. A significant portion of the Flowerfield site has been utilized for commercial/industrial purposes for many years, and much of the currently vacant space will remain vacant as required by the State and/or Town of Smithtown. However, some of the property that is currently undeveloped would be graded and built, resulting in a small loss of green space.

In addition, certain resources would be committed for construction of new buildings, roads, and supporting utility infrastructure, such as concrete, steel, asphalt, lumber, paint, and clean fill. The operation of construction equipment would require electricity, fossil fuels, and water resources (e.g. for cleaning construction vehicles and washing down work areas to prevent off-site sediment transport). Further, construction would commit manpower resources and time.

Post-construction, the new buildings and street lights would require electricity, water, and fossil fuels for heating, cooling, lighting, operation of the STP, and other purposes.

19. Alternatives

As the Gyrodyne campus property is solely an application for a subdivision, the land use mix studied in the base proposal is a preferred land use mix based on market demand studies and consistency with a plan aligned with strengthening synergies with Stony Brook University and Stony Brook Medical. Accordingly, Gyrodyne LLC developed three potential alternative land use combinations to satisfy three criteria:

1) Meet Town of Smithtown zoning requirements such as parking, setbacks, and all Town-required design elements; sufficient room and setback for the proposed sewage treatment plant; no change of zone; and synergies with Stony Brook University (including the Research and Development Park and the Medical Center) and Flowerfield Celebrations
2) Satisfy identified needs in Gyrodyne's market studies
3) Keep a similar level of trip generation, sanitary demand, water demand, etc. by increasing some components (i.e. more assisted living units) while decreasing other components (i.e. smaller hotel, smaller office) to demonstrate similar overall environmental impacts

- <u>Alternative 1</u>: 100-room hotel, 150,000 s.f. medical office, 150 assisted living units
- <u>Alternative 2</u>: 150,000 s.f. medical office, 50,000 s.f. general office, 192 assisted living units
- <u>Alternative 3</u>: 120-room hotel, 136,000 s.f. medical office, 250 assisted living units

Two additional alternatives were then developed which do not meet the above three criteria, but which could be achieved without requiring a subdivision:

- <u>Alternative 4</u>: 244,000 s.f. medical office uses
- <u>Alternative 5</u>: 382,500 s.f. general light industrial uses

Two more alternatives were then added at the direction of the Town:

- <u>Alternative 6</u>: a "public acquisition" alternative if the Town or County subdivides, acquires, and preserves the ±47.85-acre vacant area (comprising most of Lots 3 through 9) as public open space. This public space could be utilized as passive or active recreation. This document contemplates the Route 25A buffer remaining as passive recreation (±12.1 acres) and the remaining ±35.8 acres as active recreation uses (defined in the ITE *Trip Generation Manual* as a ±48-acre public park).
- <u>Alternative 7 (complies with the unadopted Draft CPU's 50% open space and 300-foot Route 25A buffer, subject to a Suffolk County Health Department variance for the setback of the STP expansion area from the LIRR tracks)</u>: 125-room hotel, 128,000 s.f. medical office, 240 assisted living units

The Final Scope requires analysis of the (previously) proposed use of the railroad crossing between Gyrodyne and the Stony Brook Research and Development Park. Gyrodyne has been actively coordinating the proposed re-opening of the railroad crossing. While significant progress has been made in this effort, including support from Stony Brook University, there is still a degree of uncertainty as to when this might be accomplished. Timing associated with LIRR and NYSDOT involvement and with one or more public hearings required to secure an approval results in an uncertain timeframe. Accordingly, Gyrodyne has modified the proposed Preliminary Subdivision Plan to clarify the railroad crossing as a "possible/future re-opening of railroad crossing". The updated Preliminary Subdivision Plan would not result in the re-opening the railroad crossing. As such, Alternative 8 reflects conditions with the railroad crossing re-opened, to analyze the possible/future use of the crossing.

- Alternative 8: The proposed action, with re-opening the railroad grade crossing

Alternative 9 was developed to provide an analysis of a potential expanded STP. The Town Supervisor has previously discussed with Gyrodyne the possibility of a STP with expanded capacity to accommodate flow from the St. James Avenue Business District. Based on the results of a Preliminary Evaluation of the St. James Sewer District prepared by the Town's consulting engineer and furnished to Gyrodyne, Alternative 9 represents an assessment of the possible STP expansion.

- Alternative 9: The proposed action, with an expanded on-site STP.

Finally, Alternative 10 was developed to provide a subdivision layout that retains a similar land use mix as the Proposed Action but creates fewer individual lots within the Flowerfield property.

- Alternative 10: 115-room hotel, 183,150 s.f. office, and 280 assisted living units on a six-lot subdivision.

The intent is for the eventual developing entity/entities to rely on this DEIS and the Town's SEQR findings to be able to develop individual lots, and if prescribed development thresholds and mitigation measures to ultimately be adopted in SEQRA Findings are complied with, it is possible that development would not require EISs associated with individual site plans. There are many similar land use mixes that could meet the above criteria; it does not make sense to analyze every possible combination. An example of this type of alternative land use mix and density in compliance with the overall criteria, which would yield similar or fewer environmental impacts to the alternatives herein, is for more assisted living units (280 vs. 220), a smaller hotel (100 rooms vs. 150) and slightly smaller office (128,000 s.f. vs. 130,000): the resulting trip generation, water demand, sanitary demand, etc. would be similar, such that there would be no difference in required traffic mitigation, visual impacts, STP design, etc.

The following tables and discussions compare the No Action, the Proposed Action, and the ten above-mentioned alternatives. The alternatives are also depicted in Figure 19-1: Alternative Plan 1 through Figure 19-10: Alternative Plan 10 on pages 19-21 through 19-30.

19.1. Geology

Any of the potential alternatives would only involve grading activity near the surface, with no genuine impact to sub-surface geology.

Table 19-1: Summary of Alternatives - Geology

Name	General Description of Impacts and Proposed
No Action	No anticipated impacts.
Proposed Action	No anticipated impacts.
Alternative 1	No anticipated impacts – same as Proposed Action.
Alternative 2	No anticipated impacts – same as Proposed Action.
Alternative 3	No anticipated impacts – same as Proposed Action.
Alternative 4	No anticipated impacts – same as Proposed Action.
Alternative 5	No anticipated impacts – same as Proposed Action.
Alternative 6	No anticipated impacts – same as Proposed Action.
Alternative 7	No anticipated impacts – same as Proposed Action.
Alternative 8	No anticipated impacts – same as Proposed Action.
Alternative 9	No anticipated impacts – same as Proposed Action.
Alternative 10	No anticipated impacts – same as Proposed Action.

19.2. Soils

The applicant anticipates that any alternate use would likely follow similar layouts for buildings, parking lots, and connecting interior roads, and will have limited to no impact on land use based on the types of soil on-site. While Alternative 10 does utilize a slightly modified interior road network/lot layout, the on-site soils would not affect this layout (which ultimately features a similar land use mix to the Proposed Action)

Apart from Alternative 6, the Alternatives would yield *de minimis* changes compared to the Proposed Action.

Table 19-2: Summary of Alternatives - Soils

Name	General Description of Impacts and Proposed
No Action	No anticipated impacts.
Proposed Action	No anticipated impacts.
Alternative 1	No anticipated impacts – same as Proposed Action.
Alternative 2	No anticipated impacts – same as Proposed Action.
Alternative 3	No anticipated impacts – same as Proposed Action.
Alternative 4	No anticipated impacts – same as Proposed Action.
Alternative 5	No anticipated impacts – same as Proposed Action.
Alternative 6	No anticipated impacts – same as Proposed Action.

Name	General Description of Impacts and Proposed
Alternative 7	No anticipated impacts – same as Proposed Action.
Alternative 8	No anticipated impacts – same as Proposed Action.
Alternative 9	No anticipated impacts – same as Proposed Action.
Alternative 10	No anticipated impacts – same as Proposed Action.

19.3. Topography

Any of the potential alternatives would involve similar mitigation and erosion control measures and will require a SWPPP (Stormwater Pollution Prevention Plan). The alternatives would also be designed to minimize excavation, and to equalize cut and fill volume to the greatest practical extent. The alternatives would differ from the Proposed Action's square footage of areas to be graded and excavated, based largely on their building sizes and numbers of required parking spaces. The differences are largely comprised of building/parking areas only because almost every alternative would involve a new STP of the same size, new utility infrastructure, and new interior roads. There are some exceptions, such as Alternatives 4, 5, and 6 that would not have an STP; Alternative 9 would have a larger STP, and Alternative 10 would utilize less interior roadway and therefore would require less grading for interior roads than the Proposed Action. Different alternatives may also have different roadway layouts, though not significantly different for the purposes of a proposed DEIS.

For each alternative, the total building area reflects the relative building square footages from Figure 19-1 through Figure 19-10 (Alternative Plans 1 through 10 on pages 19-21 through 19-30), including the STP footprint. The required number of parking spaces is simply calculated based on the different land use mix and size. Please note that the use of shared parking could modify the parking space counts under each alternative.

The change in parking lot area is based on standard traffic engineering methodology, which provides that a parking lot typically provides about 325-350 s.f. of paved area per parking space.[92] This overall average includes the spaces, drive aisles, handicapped access aisles, and landscaping. For space planning purposes, if an alternative requires 100 fewer parking spaces, it corresponds to a 35,000 s.f. reduction in parking lot area: 100 spaces x 350 s.f. per space = 35,000 s.f.

The alternatives were considered to have the following building footprints and parking lot sizes. Except for industrial use and the STP, each use is considered to have three levels (Town code allows 35' building heights). Additionally, formulas are rounded and may not add directly.

[92] ITE Transportation Planning Handbook, Third Edition, page 869.

Alternative 1: In addition to the existing light industrial buildings and catering hall, construct a 100-room hotel with restaurant, 150,000 s.f. of medical office space, and 150 assisted living units.

Table 19-3: Alternative 1 Grading and Excavation Area

Alternative 1	Change in Size compared to Proposed Action	Change in Footprint
Hotel	-37,100 s.f.	-37,100 / 3 stories = -12,367 s.f.
Medical Office	20,000 s.f.	20,000 / 3 stories = 6,667 s.f.
Assisted Living	-54,550 s.f.	-54,550 / 3 stories = -18,183 s.f.
STP	0 s.f.	0 s.f.
		Total = -23,883 s.f.
	Change in Required Parking	-63 spaces
	Area of changed parking	-63 x 350 = 22,050 s.f.
Total grading/excavation area = decreased by ±45,933 s.f. (1.05 acres)		

Alternative 2: In addition to the existing light industrial buildings and catering hall, construct 150,000 s.f. of medical office space, 50,000 s.f. of general office space, and 192 assisted living units.

Table 19-4: Alternative 2 Grading and Excavation Area

Alternative 2	Change in Size	Change in Footprint
Hotel	-110,200 s.f. (no hotel)	-110,200 / 3 stories = -36,733 s.f.
Medical Office	20,000 s.f.	20,000 / 3 stories = 6,667 s.f.
General Office	50,000 s.f.	50,000 / 3 stories = 16,667 s.f.
Assisted Living	-27,750 s.f.	-27,750 / 3 stories = -9,250 s.f.
STP	0 s.f.	0 s.f.
		Total = ± -22,650 s.f.
	Change in Required Parking	59 spaces
	Area of changed parking	59 x 350 = 20,650 s.f.
Total grading/excavation area = decreased by ±2,000 s.f. (0.05 acres)		

Alternative 3: In addition to the existing light industrial buildings and catering hall, construct a 120-room hotel with restaurant, 136,000 s.f. of medical office space, and 250 assisted living units.

Table 19-5: Alternative 3 Grading and Excavation Area

Alternative 3	Change in Size	Change in Footprint
Hotel	-22,400 s.f.	-22,400 / 3 stories = -7,467 s.f.
Medical Office	6,000 s.f.	6,000 / 3 stories = 2,000 s.f.
Assisted Living	7,500 s.f.	7,500 / 3 stories = 2,500 s.f.

Alternative 3	**Change in Size**	**Change in Footprint**
STP	0 s.f.	0 s.f.
		Total = -2,967 s.f.
	Change in Required Parking	-6 spaces
	Area of changed parking	-6 x 350 = -2,100 s.f.
Total grading/excavation area = decreased by ±5,067 s.f. (0.12 acres)		

Alternative 4: In addition to the existing light industrial buildings and catering hall, there would be no new hotel, office, or assisted living; construct 244,000 s.f. of offices.

Table 19-6: Alternative 4 Grading and Excavation Area

Alternative 4	**Change in Size**	**Change in Footprint**
Hotel	-110,200 s.f. (no hotel)	-110,200 / 3 stories = -36,733 s.f.
Medical Office	114,000 s.f.	114,000 / 3 stories = 38,000 s.f.
Assisted Living	-148,000 s.f. (no a. living)	-148,000 / 3 stories = -49,333 s.f.
STP	-7,950 s.f. (no STP)	-7,950 s.f.
		Total = ± -56,016 s.f.
	Change in Required Parking	161 spaces
	Area of changed parking	161 x 350 = 56,350 s.f.
Total grading/excavation area = increased by ± 334 s.f. (0.01 acres)		

Alternative 5: In addition to the existing light industrial buildings and catering hall, there would be no new hotel, office, or assisted living; construct 382,500 s.f. of light industrial space that would likely yield single-story rather than 3-story buildings.

Table 19-7: Alternative 5 Grading and Excavation Area

Alternative 5	**Change in Size**	**Change in Footprint**
Hotel	-110,200 s.f. (no hotel)	-110,200 / 3 stories = -36,733 s.f.
Medical Office	-130,000 s.f. (no office)	-130,000 / 3 stories = -43,333 s.f.
Assisted Living	-148,000 s.f. (no a. living)	-148,000 / 3 stories = -49,333 s.f.
Industrial	382,500 s.f.	382,500 s.f.
STP	-7,950 s.f. (no STP)	-7,950 s.f.
		Total = ± 245,150 s.f.
	Change in Required Parking	-701 spaces
	Area of changed parking	-701 x 350 = -245,350 s.f.
Total grading/excavation area = decreased by ± 200 s.f. (0.00 acres)		

Alternative 6: The Town or County acquires, subdivides, and preserves the vacant area as public open space.

Table 19-8: Alternative 6 Grading and Excavation Area

Alternative 6	**Change in Size**	**Change in Footprint**
Hotel	-110,200 s.f. (no hotel)	-110,200 / 3 stories = -36,733 s.f.
Medical Office	-130,000 s.f. (no office)	-130,000 / 3 stories = -43,333 s.f.
Assisted Living	-148,000 s.f. (no assisted living)	-148,000 / 3 stories = -49,333 s.f.
STP	-7,950 s.f. (no STP)	-7,950 s.f.
		Total = ± -137,350 s.f.
	Change in Required Parking	Unknown, estimate -1,200 spaces
	Area of changed parking	-1,200 x 350 = -420,000 s.f.
Total grading/excavation area = decreased by ±557,350 s.f. (12.79 acres)		

Alternative 7: In addition to the existing light industrial buildings and catering hall, construct a 125-room hotel, 128,000 s.f. of medical office space, and 240 assisted living units.

Alternative 7 was developed to comply with the unadopted Draft CPU's 50% open space and 300-foot Route 25A buffer.

Table 19-9: Alternative 7 Grading and Excavation Area

Alternative 7	**Change in Size**	**Change in Footprint**
Hotel	-10,500 s.f.	-10,500 / 3 stories = -3,500 s.f.
Medical Office	-2,000 s.f.	-2,000 / 3 stories = - 667 s.f.
STP	0 s.f.	0 s.f.
		Total = ± -4,167 s.f.
	Change in Required Parking	-57 spaces
	Area of changed parking	-57 x 350 = -19,950 s.f.
Total grading/excavation area = decreased by ±24,117 s.f. (0.55 acres)		

Alternative 8: Alternative 8 will retain the same land use mix as the Proposed Action, with the railroad crossing re-opened.

Table 19-10: Alternative 8 Grading and Excavation Area

Alternative 8	**Change in Size**	**Change in Footprint**
Hotel	0 – same as Proposed Action	0 s.f.
Medical Office	0 – same as Proposed Action	0 s.f.
Assisted Living	0 – same as Proposed Action	0 s.f.
Industrial	0 – same as Proposed Action	0 s.f.

Alternative 8	**Change in Size**	**Change in Footprint**
STP	0 s.f.	0 s.f.
	Change in Required Parking	0 spaces
Total grading/excavation area = same as Proposed Action		

Alternative 9: Alternative 9 will retain the same land use mix as the Proposed Action, with an expanded on-site STP. An expansion of the proposed STP from 100,000 gpd to 171,000 gpd could be accommodated within the same overall design layout.

Table 19-11: Alternative 9 Grading and Excavation Area

Alternative 9	**Change in Size**	**Change in Footprint**
Hotel	0 – same as Proposed Action	0 s.f.
Medical Office	0 – same as Proposed Action	0 s.f.
Assisted Living	0 – same as Proposed Action	0 s.f.
Industrial	0 – same as Proposed Action	0 s.f.
STP	7,950 s.f.	7,950 s.f.
	Change in Required Parking	0 spaces
Total grading/excavation area = increased by 7,950 s.f. (0.18 acres)		

Alternative 10: Alternative 10 retains a similar land use mix as the Proposed Action, with fewer subdivision lots (six lots vs. nine lots). While Alternative 10 has more grading and excavation associated with building and parking areas, this subdivision layout allows for a reduction of interior roadway area by approximately ±26,700 s.f. (0.61 acres) compared to the Proposed Action.

Table 19-12: Alternative 10 Grading and Excavation Area

Alternative 10	**Change in Size**	**Change in Footprint**
Hotel	-20,900 s.f.	-20,900 / 3 stories = -6,967 s.f.
Medical Office	-130,000 s.f. (no med. office)	-130,000 / 3 stories = -43,333 s.f.
Office	183,150 s.f.	183,150 / 3 stories = 61,050 s.f.
Assisted Living	31,500 s.f.	31,500 / 3 stories = 10,500 s.f.
Industrial	-19,841 s.f. (changes to office)	-19,841 s.f.
STP	0 s.f.	0 s.f.
		Total = ± 1,409 s.f.
	Change in Required Parking	139 spaces
	Area of changed parking	139 x 350 = 48,650 s.f.
	Change in Area of Interior Roadway	-26,700 s.f.
Total grading/excavation area = increased by ±23,359 s.f. (0.54 acres)		

Table 19-13: Summary of Alternatives – Topography

Name	General Description of Impacts and Proposed Mitigation
No Action	No anticipated impacts.
Proposed Action	No anticipated impacts.
Alternative 1	No anticipated impacts – approximately 1.05 acres less to be excavated and graded, compared to the Proposed Action, to satisfy parking requirements.
Alternative 2	No anticipated impacts – minimally less excavation (±0.05 acres less) compared to the Proposed Action, to satisfy parking requirements.
Alternative 3	No anticipated impacts – approximately 0.12 acres less excavation compared to the Proposed Action, to satisfy parking requirements.
Alternative 4	No anticipated impacts – minimally more excavation (less than 0.01 acres more) compared to the Proposed Action, to satisfy parking requirements.
Alternative 5	No anticipated impacts – minimally more excavation (less than 0.01 acres) compared to the Proposed Action, to satisfy parking requirements.
Alternative 6	Noticeably less excavation (12.79 acres) compared to the Proposed Action.
Alternative 7	No anticipated impacts – approximately 0.55 acres less excavation compared to the Proposed Action.
Alternative 8	No anticipated impacts – same excavation as the Proposed Action.
Alternative 9	No anticipated impacts – same excavation as the Proposed Action, apart from 7,950 s.f. for the larger on-site STP.
Alternative 10	No anticipated impacts – more excavation (0.54 acres) compared to the Proposed Action, to satisfy parking requirements.

19.4. Vegetation and Wildlife

Similar to the Proposed Action, the potential development of the site under Alternatives 1 through 5 and 8 would result in the loss of 30.3 acres of mowed lawn and mowed lawn with trees habitat and 1.1 acres of successional old fields through conversion to hard surfaces, buildings, and landscaping. Accordingly, any existing non-breeding habitat for grassland birds provided by these areas would be lost under these alternatives. Open habitats utilized by grassland birds require periodic disturbance (such as mowing) to prevent the encroachment of woody trees and shrubs and conversion to shrublands or forests. In the absence of periodic mowing, the 3.5 acres of successional old fields, 2.9 acres of mowed lawn, and 0.9 acres of mowed lawn with trees maintained in the Lot 9-Common Area under these alternatives will gradually convert to young successional southern hardwoods that do not provide suitable habitat for grassland birds. Maintenance of these open habitats would require mowing once per year (or once every two to three years) in the late summer. It is not anticipated that the Lot 9-Common Area would be managed in this manner and, accordingly, grassland bird habitat would gradually be lost due to tree and shrub encroachment thereby restricting the habitat for these species to the meadows/grasslands at Avalon Preserve and agricultural habitats at BB & GG Farms. Under Alternative 7, the "50% open space and 300-foot Route 25A buffer" alternative, additional open space areas are provided at the margins of the proposed parking areas and roadways. However, these additional open space areas are not expected to be managed to maintain open, tall grassy habitats. Therefore, similar to Alternatives 1-5 and 8, it is expected that these open habitats would gradually be lost as they transition to young successional southern hardwoods or converted to landscaping areas.

Under Alternative 6, the "public acquisition alternative", the existing mowed lawn, mowed lawn with trees, and successional old fields would be preserved as public open space. It is not known if the Town or County would actively manage these areas to provide grassland bird habitat. Accordingly, while the potential exists for maintaining or enhancing grassland bird habitat under Alternative 6, the existing grassland bird habitat may also be lost over time under Alternative 6 if these areas are allowed to convert to forests or if they are managed to provide other public open space amenities.

Under the No Action Alternative, the existing mowed lawn, mowed lawn with trees, and successional old fields utilized by grassland habitats would not be developed. However, it is not known if the property owner would continue the existing mowing regime in these areas under the No Action Alternative. Therefore, while the potential exists for maintaining or enhancing grassland bird habitat under the No Action Alternative 6, the existing grassland bird habitat may also be lost over time under this alternative if the current or future property owner allows these areas to convert to forest habitats.

19.5. Groundwater

Alternatives 1 through 3 and Alternatives 7 through 10 would require an on-site STP. The potential wastewater flows from these Alternatives would generally range from approximately 70,000 to 100,000 gpd, with Alternative 9 providing an analysis of a potential expanded STP that could treat up to 171,000 gpd to accommodate flow from the St. James Business District. With the exception of Alternative 9, the STP would most likely be designed to accommodate 100,000 gpd under any Alternative, based on the modular capacity of standard STPs. As such, a more detailed analysis of Alternative 9 is provided below.

<u>Alternative 9 Assessment:</u>

The Town Supervisor has previously discussed with Gyrodyne the possibility of a STP with expanded capacity to accommodate flow from the St. James Avenue Business District. While it is Gyrodyne's position that a municipality may not impose this expansion as a condition without further justification, Gyrodyne remains amenable to this concept under certain conditions and could be open to this alternative at a future time. Based on the results of a Preliminary Evaluation of the St. James Sewer District prepared by the Town's consulting engineer and furnished to Gyrodyne, the following represents an assessment of the possible STP expansion.

The proposed subdivision build-out, including the existing campus uses, has a projected flow of 87,534 gallons per day (gpd). The proposed STP design capacity is 100,000 gpd. This would leave approximately 12,466 gpd of excess capacity or approximately 12.4% of overall plant capacity. The preliminary evaluation of the proposed St. James sewer district (furnished by the Town) estimates ±69,600 gallons per day of flow from existing uses in the St. James business district. The evaluation states that it does not discuss potential future build-out of the proposed St. James business district area, should sewers become available. Experience suggests that once a sewer district is established, additional flow is likely.

For the Gyrodyne STP to accommodate the proposed sewer district, the design capacity of the Gyrodyne STP facility would need to be increased. The proposed build-out of Gyrodyne is estimated at 87,534 gallons per day of sewage flow. The proposed sewer district flow adds an estimated 69,600 gallons per day for a total of 157,134 gallons per day. Adding 8.5% for a cushion results in a projected flow of 170,490 gallons per day, which would be rounded up to 171,000 gallons per day. The 8.5% value is used as New York State Department of Environmental Conservation (NYSDEC) and Suffolk County Department of Health Services (SCDHS) would require that a Flow Management Plan be prepared and submitted once flow approaches 95% of design capacity (95,000 gpd). With respect to spatial requirements for the proposed STP, as per SCDHS "Standards for Approval of Plans and Construction for Sewage Disposal Systems for Other Than Single-Family Residences, December 2017, Section Xi.(5)(b), "an adequate area shall be set aside to allow for a minimum of 100% expansion and/or replacement of sewage treatment and disposal systems". A preliminary engineering spatial evaluation of the current STP layout and associated leaching area could be expanded to 171,000 gpd to accommodate the proposed St. James sewer district flow. A future expansion of the STP to 342,000 gpd (per SCDHS requirements) indicates that the current STP parcel in combination with the open space buffer can accommodate this expansion without impact to developable parcels on the subdivision map. However, additional flow or unanticipated design requirements mandated by SCDHS could negatively impact the level of development.

The proposed STP operating at 100,000 gpd capacity will discharge approximately 5.84 pounds of nitrogen per day (2,132 pounds per year) from the STP building. This calculation, for comparison purposes, will not take into account the further nitrogen reductions as the effluent traverses through soil and groundwater. This includes treatment of the sewage flow from current uses at the Gyrodyne site that are utilizing on-site wastewater treatment systems (OWTS). An STP sized with a 171,000 gpd capacity would discharge approximately 9.98 pounds of nitrogen per day (3,643 pounds per year). This would be an increase of 4.14 pounds per day of nitrogen (1,511 pounds per year), an increase of 71% of nitrogen discharged to the groundwater at the Gyrodyne site from wastewater. The increase in nitrogen loading to the soils at the Gyrodyne site from wastewater would be offset by the decrease in nitrogen loading to the soils from the proposed sewer district at St. James Business District once sewers are available and properties are connected. Nitrogen loading from the unsewered area on Lake Avenue would be currently estimated at 0.071 MGD x 50 mg/L x 8.34 = 29.6 pounds per day. The 50 mg/L nitrogen value for on-site system discharge concentration has been calculated based on SCDHS recommendations (General Guidance Memorandum #28, July 24, 2017, see page J-14). Nitrogen loading calculation is based on flow, concentration, and an 8.34 conversion factor previously cited in this report.[93]. This volume of sewage transported to the Gyrodyne STP would be treated to a level of 7 mg/L, or 4.14 pounds per day as previously stated. Overall reduction of nitrogen currently being discharged to the soils from the properties within the proposed sewer district of the St. James Business District would be 25.46 pounds per day (9,293 pounds per year).

It is Gyrodyne's position that the County of Suffolk Department of Health Services can only require an applicant to demonstrate the ability to accommodate its own sanitary flow and pursuant to New York State Town Law (TWN § 277) and applicable New York State case law. See Sepco Ventures, Ltd. V. Planning Bd. of Town of Woodbury, 230 A.D. 2d 913, 915 (2nd Dept., 1996). The Town may not require a subdivision applicant to provide off-site improvements in relation to a land use application. Further, the United States Supreme Court Decision in Koontz v. St John's River Water Management District (570 U.S. 595, 133 S. Ct. 2586) held that a municipality may not require an applicant to perform off-site improvements without a direct nexus and rough proportionality between the impact of the application and the request, and that such a request/requirement is an illegal exaction under the United States Constitution. That being said, Gyrodyne remains amenable to the alternative of enlarging the plant, provided it does not materially affect Gyrodyne's requirements regarding costs of such, timing of subdivision, and sale of development assets. Should enlargement of the plant materially affect the cost, or timing of ultimate sale of the subdivision property, the alternative may not be feasible.

Table 19-14: Summary of Alternatives – Groundwater

Name	General Description of Impacts and Proposed Mitigation
No Action	Lower groundwater demand and wastewater flow than the Proposed Action, but no on-site STP, so wastewater would continue to be treated via on-site septic
Proposed	On-site STP for 100,000 gpd accommodates all anticipated impacts.
Alternative 1	On-site STP for 100,000 gpd accommodates all anticipated impacts.
Alternative 2	On-site STP for 100,000 gpd accommodates all anticipated impacts.
Alternative 3	On-site STP for 100,000 gpd accommodates all anticipated impacts.
Alternative 4	No new on-site STP.
Alternative 5	No new on-site STP.
Alternative 6	No new on-site STP (unless publicly funded, designed, and installed).
Alternative 7	On-site STP for 100,000 gpd accommodates all anticipated impacts.
Alternative 8	On-site STP for 100,000 gpd accommodates all anticipated impacts.
Alternative 9	On-site STP for 171,000 gpd would discharge approximately 71% more nitrogen than discharge associated with the Proposed Action.
Alternative 10	On-site STP for 100,000 gpd accommodates all anticipated impacts.

[93] A typical wastewater conversion rate of 8.34 has been applied to simplify the formula converting mg/L to lb/day or vice versa.

19.6. Stormwater Collection, Treatment and Recharge

Any of the alternatives would be designed to accommodate the same storm event and would add stormwater management and green infrastructure that does not exist today. The differences pertain to the amount of new impervious coverage from new buildings and new parking lots and access roads. Figure 19-1 through Figure 19-10 (pages 19-21 through 19-30) provide detailed stormwater calculations for each Alternative.

The new impervious coverage in Alternatives 1 through 3, and 7 through 9 would be similar to the Proposed Action since these alternatives have the same building heights and similar parking requirements. Alternative 10 introduces more building and parking area but reduces overall interior road area.

The new impervious coverage in Alternative 4 would be similar to the Proposed Action, so the overall change may not be significant. However, Alternative 4 and Alternative 5 do not involve a subdivision application, so they would not include the same "green" approach and would likely have less green infrastructure than the Proposed Action.

Additionally, for Alternative 5 (100% new industrial), the new impervious coverage would be significantly higher than the Proposed Action, because new industrial buildings would be one story rather than three stories tall. This results in a much larger building footprint relative to the square footage.

Alternative 6 would have minimal added impervious space, so it would have less new on-site stormwater infrastructure than the Proposed Action

Table 19-15: Summary of Alternatives - Stormwater

Name	General Description of Impacts and Proposed Mitigation
No Action	No new on-site stormwater management infrastructure.
Proposed Action	Net benefit to stormwater management based on new drainage reserve areas, green infrastructure, and underground structures to offset the new impervious coverage.
Alternative 1	Similar to the Proposed Action (no significant difference).
Alternative 2	Similar to the Proposed Action (no significant difference).
Alternative 3	Similar to the Proposed Action (no significant difference).
Alternative 4	Similar to the Proposed Action with fewer opportunities for integration of green infrastructure.
Alternative 5	Requires more stormwater storage infrastructure than the Proposed Action due to significantly more impervious area; less use of "green" infrastructure.
Alternative 6	Retains maximum pervious surface area on-site. New on-site stormwater management infrastructure would likely be installed as well.
Alternative 7	Similar to the Proposed Action (no significant difference).
Alternative 8	Same as the Proposed Action (no difference).
Alternative 9	Same as the Proposed Action (no difference).
Alternative 10	Similar to the Proposed Action (slight increase in impervious area compared to the Proposed Action).

19.7. Traffic

The alternatives were developed, in part, based on the applicant's desire to maintain similar numbers of site-generated trips during peak hours so the same off-site traffic mitigation measures would accommodate any of the alternatives.

Additionally, as described above, each alternative should be able to provide sufficient parking, possibly with similar levels of shared and/or landbanked spaces. For the purpose of comparing alternatives, each 325-350 s.f. of extra or reduced building space corresponds to one parking space. This is a standard accepted design ratio that includes room for the parking space itself, the adjacent drive aisle, end islands, and handicapped stalls and aisles. For example, if an alternative has 10,000 s.f. less building space, it leaves room for ±28 additional parking spaces since $^{10,000}/_{350}$ = 28.6 (the result gets rounded down).

The main difference, therefore, is that compared to the Proposed Action, Alternatives 1, 2, and 3 have different mixes of land uses with potentially less synergy/connectivity with Stony Brook University and the Flowerfield catering facility.

<u>Truck Trips</u>: The analyzed alternatives would have similar percentages of truck trips. Alternative 5[94] would have a higher truck component than the Proposed Action or any of the analyzed alternatives in this DEIS, based on industrial vs. non-industrial use. Multiple sources were researched because truck trip generation is less straightforward than total trip generation, largely because of the variety in truck size categories (e.g. tractor trailer vs. delivery truck). Based on a review of three sources,[95,96,97] it is realistic to expect up to an 8% truck component for peak hour trips at general light industrial uses, and 10-13% trucks over the course of a typical weekday (24 hours). The daily percentage is higher because truck trips are often made outside typical peak hour periods. In comparison, the proposed land uses at the Flowerfield site have much smaller expected truck trip percentages[96]:

- Industrial uses: 10-13% daily truck trips
- Assisted living: 1-2% daily truck trips
- R&D offices: 0.4 to 4% with an average of 1.84% daily truck trips

In terms of peak hour traffic, the industrial alternative #5 (which the Applicant does not wish to implement) could have up to 8% trucks in its peak hour generated traffic. This alternative could generate 362-390 trips during peak hours, which corresponds to roughly 31 trucks an hour during peak weekday hours.

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[94] As described in Section 19.7, Alternative 5 consists of 382,500 s.f. of new light industrial use. The Applicant does not intend to pursue this Alternative; it is presented here for comparison purposes only.
[95] ITE Journal, July 1994. Truck Trip Generation Characteristics of Nonresidential Land Uses.
[96] ITE Trip Generation Handbook, 3rd Edition. Table J.1: Truck Trip Generation Information. August 2014. The table reflects industrial parks, which is similar enough to light industry for the purposes of this DEIS.
[97] National Cooperative Highway Research Program, Truck Trip Generation: a Synthesis of Highway Practice. 2001.

Table 19-16: Projected Peak Hour Trips and Required Parking – Alternatives

	Total Hourly Trips (Includes Internal Trips)			Required Parking (above existing)
	AM Peak Hour	PM Peak Hour	Saturday Peak Hour	
Proposed Action	357	538	324	1,466
Alternative 1	345	533	295	1,403
Alternative 2	385	555	260	1,525
Alternative 3	354	538	319	1,460
Alternative 4	409	697	294	1,627
Alternative 5	260	241	157	765
Alternative 6	18	84	95	Not listed in § 322-62 parking schedule
Alternative 7	343	517	310	1,409
Alternative 8	357	538	324	1,466
Alternative 9	357	538	324	1,466
Alternative 10	314	344	256	1,605

Table 19-17: Summary of Alternatives – Traffic and Parking

Name	General Description of Impacts and Proposed Mitigation
No Action	No traffic-related changes to any of the study intersections.
Proposed Action	Sufficient on-site parking; traffic improvements/mitigation at five (5) intersections, including two new traffic signals where existing volumes warrant signalization.
Alternative 1	Sufficient parking; same anticipated traffic mitigation as the Proposed Action.
Alternative 2	Sufficient parking; same anticipated traffic mitigation as the Proposed Action.
Alternative 3	Sufficient parking; same anticipated traffic mitigation as the Proposed Action.
Alternative 4	Sufficient parking; more potential traffic mitigation than the Proposed Action.
Alternative 5	Sufficient parking; more potential traffic mitigation than the Proposed Action.
Alternative 6	Sufficient parking; no anticipated traffic mitigation required.
Alternative 7	Sufficient parking; same anticipated traffic mitigation as the Proposed Action.
Alternative 8	Sufficient parking; same anticipated traffic mitigation as the Proposed Action.
Alternative 9	Sufficient parking; same anticipated traffic mitigation as the Proposed Action.
Alternative 10	Sufficient parking including shared parking; same or less anticipated traffic mitigation than the Proposed Action.

19.8. Community Services

Overall, community service impacts are anticipated to be similar across all of the Alternatives. None of the Alternatives would generate any school-aged children and all would require police, fire/EMS, utility (water, electric, natural gas/fuel oil) and solid waste services for operations. Site access (for emergency service providers) would also remain similar across all of the Alternatives.

19.9. Taxes/Economic Impacts

Overall tax and economic impacts are positive across all Alternatives with the exception of Alternative 6, which would result in significant costs to the public entity responsible (i.e., Town of Smithtown, Suffolk County etc.) for the acquisition, development, debt service, operation, maintenance, and facility upgrades associated with the public open space.

Table 19-18: Summary of Alternatives – Taxes and Economic Impacts

Name	General Description of Impacts and Proposed Mitigation
No Action	No benefits to local taxing entities (same revenue and outlays as today)
Proposed Action	1,507 total construction jobs, 1,078 net new jobs, and a significantly positive net benefit to all local taxing entities, with no new school children.
Alternative 1	1,279 total construction jobs, 1,078 net new jobs, and a significantly positive net benefit to all local taxing entities, with no new school children.
Alternative 2	1,298 total construction jobs, 1,171 net new jobs, and a significantly positive net benefit to all local taxing entities, with no new school children.
Alternative 3	1,531 total construction jobs, 1,106 net new jobs, and a significantly positive net benefit to all local taxing entities, with no new school children.
Alternative 4	969 total construction jobs, 1,349 net new jobs, and a significantly positive net benefit to all local taxing entities, with no new school children.
Alternative 5	781 total construction jobs, 731 net new jobs, and a significantly positive net benefit to all local taxing entities, with no new school children.
Alternative 6	Negative impact compared to the Proposed Action: the overall cost of acquisition, development, debt service, operations/maintenance and periodic facility improvements would be very significant expenses for the Town. Such a facility would also not produce tax revenues. In addition, new job creation would be anticipated to be minimal as workers would likely be municipal employees. As such, Alternative 6 would likely result in significant adverse fiscal impacts.
Alternative 7	1,507 total construction jobs, 1,077 net new jobs, and a significantly positive net benefit to all local taxing entities, with no new school children.
Alternative 8	The same impacts as the Proposed Action – the only change to construction would likely involve MTA-LIRR workers to improve the crossing (no new jobs created)
Alternative 9	1,507 total construction jobs, 1,078 net new jobs, and a significantly positive net benefit to all local taxing entities, with no new school children.
Alternative 10	1,518 total construction jobs, 1,085 net new jobs, and a significantly positive net benefit to all local taxing entities, with no new school children.

19.10. Land Use and Open Space

Table 19-19: Summary of Alternatives – Land Use and Open Space

Name	General Description of Impacts and Proposed Mitigation
No Action	Continued use of the existing light industrial buildings and catering hall, with the remainder of the site left vacant
Proposed Action	Reduction in open space, but an increase in usable, managed undeveloped space that can be utilized for greenways and bicyclists. Overall open space acreage would be 36.51 acres or 48.7% of the total site area.
Alternative 1	Similar impacts to the Proposed Action
Alternative 2	Similar impacts to the Proposed Action
Alternative 3	Similar impacts to the Proposed Action
Alternative 4	Significant reduction in open space.
Alternative 5	Significant reduction in open space.
Alternative 6	Increased open space, but open space will not necessarily be managed or configured to accommodate bicyclists and pedestrians. In addition, given the large percentage of open space provided by the Proposed Action (nearly 49% of total site area) and many of the Alternatives (50% open space provided in Alternative 7), Alternative 6 would not necessarily offer a significant improvement in open space.
Alternative 7	Minimal increase in open space compared to the Proposed Action (50% vs. 48.7%)
Alternative 8	Same impacts as the Proposed Action
Alternative 9	Similar impacts to the Proposed Action
Alternative 10	Similar impacts to the Proposed Action

19.11. Air Quality

Any of the potential alternatives would require a SWPPP based on the total amount of land that will need to be disturbed during construction. Short-term air quality impacts that could occur during construction, such as construction vehicle exhaust, trucks raising dust, and earthwork/clearing/grading operations, will be governed by a Stormwater Pollution Prevention Plan (SWPPP) that will include Erosion and Sediment Control (ESC) to minimize such impacts (e.g. by preventing the propagation of dust off-site).

It is the applicant's opinion that, apart from the all-industrial alternative which is not being proposed, none of the alternatives (and none of the proposed subdivision alternatives) would create specific new point sources for air pollution. A point source is a specific air pollution source that would be modeled at a single point location in an air quality model. Point sources include, for example, factories, smokestacks, and incinerators. These types of point sources would be subject to exhaust air discharge permits issued by the New York State Department of Environmental Conservation.

Alternative 5 (382,000 s.f. of new general light industry) has the potential to generate a higher percentage of trucks compared to its total number of site-generated trips. See Section 19.7 beginning on page 19-14 for further information. Therefore, on a relative basis, Alternative 5 could create higher air quality impacts than the Proposed Action and the other alternatives.

Table 19-20: Summary of Alternatives – Air Quality

Name	General Description of Impacts and Proposed Mitigation
No Action	No air quality impacts.
Proposed Action	Minimal air quality impacts will be minimized during construction using standard Erosion and Sediment Control measures to be designed on engineering plans and to be inspected during construction. No new point sources of air pollution.
Alternative 1	Same conclusion as the Proposed Action: no significant air quality impacts
Alternative 2	Same conclusion as the Proposed Action: no significant air quality impacts
Alternative 3	Same conclusion as the Proposed Action: no significant air quality impacts
Alternative 4	Same conclusion as the Proposed Action: no significant air quality impacts
Alternative 5	Slightly higher air quality impacts than the Proposed Action due to truck trips
Alternative 6	Same conclusion as the Proposed Action: no significant air quality impacts
Alternative 7	Same conclusion as the Proposed Action: no significant air quality impacts
Alternative 8	Same conclusion as the Proposed Action: no significant air quality impacts
Alternative 9	Same conclusion as the Proposed Action: no significant air quality impacts
Alternative 10	Same conclusion as the Proposed Action: no significant air quality impacts

19.12. Noise

Any of the proposed alternatives would involve similar building setbacks and adherence to the required setbacks from Route 25A and from any residentially zoned parcel. No proposed land use would create peak sound generation overnight or on weekends.

Because Alternative 5 (100% general light industry expansion) could involve higher percentages of trucks (see Section 19.7), this Alternative could involve more on-site noise associated with truck trips vs. standard-size vehicle trips. The other alternatives are expected to be consistent with the lack of significant impacts for the Proposed Action.

Table 19-21: Summary of Alternatives - Noise

Name	General Description of Impacts and Proposed Mitigation
No Action	No impacts
Proposed Action	No significant long-term impacts are expected
Alternative 1	Same as the Proposed Action – no significant long-term impacts are expected
Alternative 2	Same as the Proposed Action – no significant long-term impacts are expected
Alternative 3	Same as the Proposed Action – no significant long-term impacts are expected
Alternative 4	Same as the Proposed Action – no significant long-term impacts are expected
Alternative 5	Potential for increased noise associated with truck trips compared to the Proposed Action – no significant long-term impacts are expected
Alternative 6	Same as the Proposed Action – no significant long-term impacts are expected
Alternative 7	Same as the Proposed Action – no significant long-term impacts are expected

Name	General Description of Impacts and Proposed Mitigation
Alternative 8	Same as the Proposed Action – no significant long-term impacts are expected
Alternative 9	Same as the Proposed Action – no significant long-term impacts are expected
Alternative 10	Same as the Proposed Action – no significant long-term impacts are expected

19.13. Visual Impacts

Each alternative would involve the same required buffers, the same building height limits, and similar or smaller limits of disturbance, so each alternative would have the same or a similar impact on visual resources as the Proposed Action.

Because Alternative 5 (100% general light industry expansion) could involve higher percentages of trucks (see Section 19.7), this Alternative could involve more trucks in the general area as opposed to standard-size vehicles.

Table 19-22: Summary of Alternatives – Visual Impacts

Name	General Description of Impacts and Proposed Mitigation
No Action	No impacts
Proposed Action	No significant long-term impacts are expected; the applicant anticipates providing enhanced vegetative screening along portions of Route 25A
Alternative 1	Same as the Proposed Action – no significant long-term impacts are expected
Alternative 2	Same as the Proposed Action – no significant long-term impacts are expected
Alternative 3	Same as the Proposed Action – no significant long-term impacts are expected
Alternative 4	Same as the Proposed Action – no significant long-term impacts are expected
Alternative 5	Same as the Proposed Action – no significant long-term impacts are expected
Alternative 6	Same as the Proposed Action – no significant long-term impacts are expected
Alternative 7	Same as the Proposed Action – no significant long-term impacts are expected
Alternative 8	Same as the Proposed Action – no significant long-term impacts are expected
Alternative 9	Same as the Proposed Action – no significant long-term impacts are expected
Alternative 10	Same as the Proposed Action – no significant long-term impacts are expected

19.14. Historic and Cultural Resources

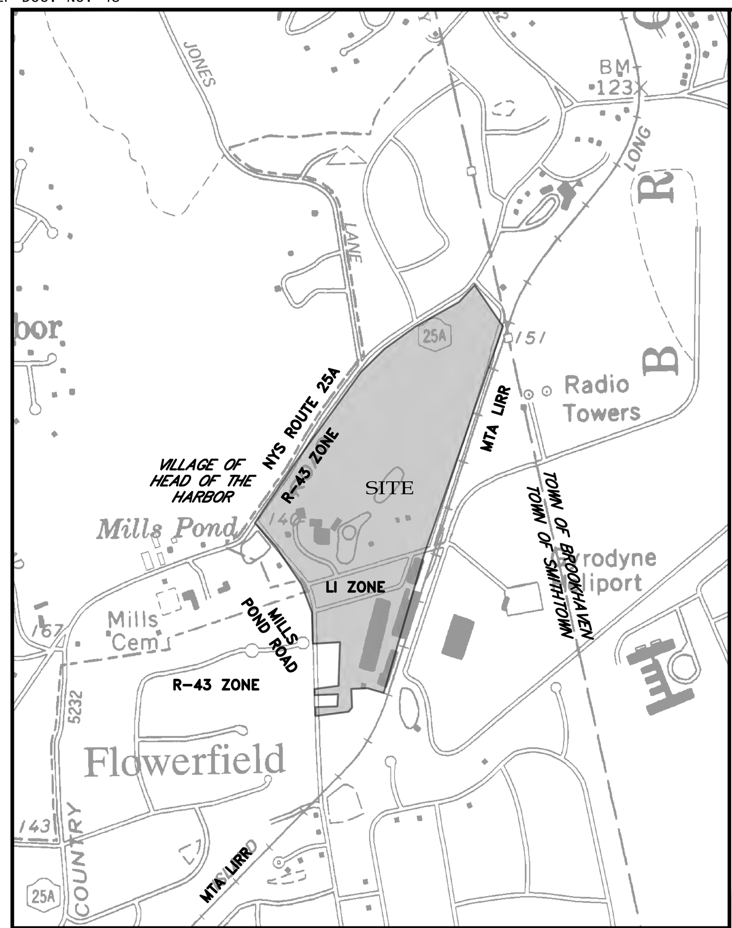
Each alternative would involve the same required buffers, and similar or smaller limits of disturbance, so each alternative has no impact on historic and cultural resources.

Table 19-23: Summary of Alternatives – Historic and Cultural Resources

Name	General Description of Impacts and Proposed
No Action	Same as Proposed Action – no impacts
Proposed Action	Same as Proposed Action – no impacts
Alternative 1	Same as Proposed Action – no impacts
Alternative 2	Same as Proposed Action – no impacts
Alternative 3	Same as Proposed Action – no impacts

Name	General Description of Impacts and Proposed
Alternative 4	Same as Proposed Action – no impacts
Alternative 5	Same as Proposed Action – no impacts
Alternative 6	Same as Proposed Action – no impacts
Alternative 7	Same as Proposed Action – no impacts
Alternative 8	Same as Proposed Action – no impacts
Alternative 9	Same as Proposed Action – no impacts
Alternative 10	Same as Proposed Action – no impacts

The following figures depict site layouts under each alternative, plus a comparison to the Proposed Action's base plan.



KEY LOCATION MAP
(SCALE 1"=600'±)

EXISTING AND PROPOSED DEVELOPMENT DATA

LOT NUMBER	LOT SIZE (ACRES)	LAND USE	BUILDING SIZE/YIELD	
1	12.75	EXISTING MIXED-USE BUILDINGS	132,719	S.F.
2	12.94	EXISTING CATERING HALL	34,685	S.F.
3	2.15	PROPOSED ADDITIONAL PARKING	NA	
4	4.90	PROPOSED HOTEL WITH RESTAURANT	73,100	S.F.
			100	ROOMS
5	5.84	PROPOSED MEDICAL OR R&D OFFICE	60,000	S.F.
6	3.97	PROPOSED ASSISTED LIVING	93,450	S.F.
			150	UNITS
7	4.20	PROPOSED MEDICAL OR R&D OFFICE	45,000	S.F.
8	4.28	PROPOSED MEDICAL OR R&D OFFICE	45,000	S.F.
9	23.95	PROPOSED COMMON AREA AND STP	7,950	S.F.
TOTAL	74.98			

LANDSCAPE COVERAGE DATA

LOT NUMBER	LANDSCAPE AREA (ACRES)	LOT AREA (ACRES)	PERCENTAGE OF LANDSCAPED AREAS
1	3.38	12.75	27%
2	6.36	12.94	49%
3	0.84	2.15	39%
4	2.93	4.90	60%
5	2.24	5.84	38%
6	1.14	3.97	29%
7	1.15	4.20	27%
8	1.28	4.28	30%
9	19.94	23.95	83%
TOTAL	39.26	74.98	52%

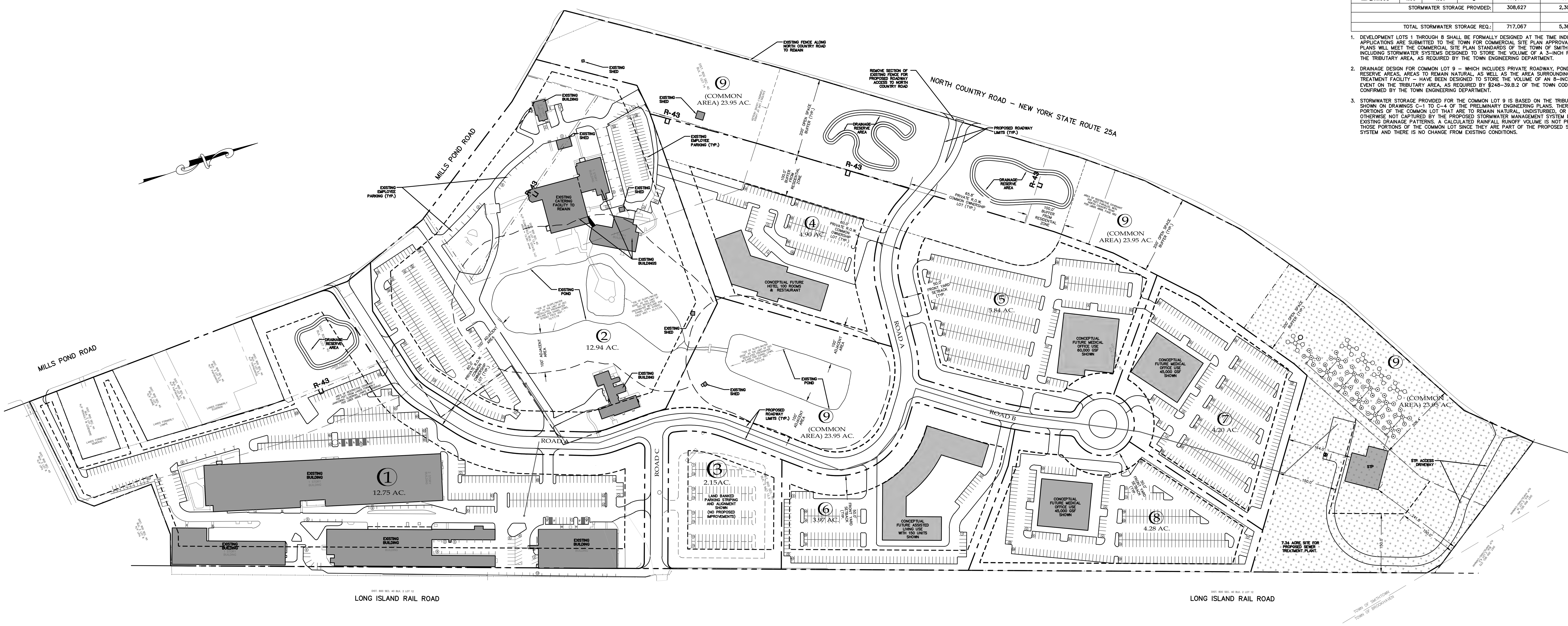
COMPARISON TO BASE PLAN

ENVIRONMENTAL RESOURCE	BASE PLAN/PROPOSED ACTION	ALTERNATIVE 1
GEOLOGY	NO IMPACTS	SAME AS BASE PLAN
SOILS	NO IMPACTS	SAME AS BASE PLAN
TOPOGRAPHY (GRADING AND EXCAVATION AREA FROM BUILDING-PARKING FOOTPRINT)	137,350 S.F. NEW BUILDING FOOTPRINT INCLUDING NEW ON-SITE STP	SIMILAR TO (SMALLER THAN) BASE PLAN: 113,467 S.F. NEW BUILDING FOOTPRINT ±22,050 S.F. SMALLER PARKING AREA NEEDED
VEGETATION AND WILDLIFE	HABITATS CONVERT TO HARDSCAPE OR SUCCESSIONAL FORESTS	SIMILAR TO BASE PLAN AND THE ADDITIONAL OPEN SPACE WOULD TRANSITION TO SUCCESSIONAL FOREST
WASTEWATER TREATMENT	ON-SITE 100 MGD STP	SAME AS BASE PLAN
TRAFFIC GENERATION	324 TO 538 TRIPS INCLUDING INTERNAL TRIPS	SIMILAR TO BASE PLAN: 295 TO 533 TRIPS INCLUDING INTERNAL TRIPS
OFF-SITE TRAFFIC MITIGATION	MITIGATION ADDRESSES OFF-SITE IMPACTS & EXISTING CONCERNS AT 2 LOCATIONS	SAME MITIGATION AS BASE PLAN
PARKING	1,466 MORE SPACES REQUIRED SUFFICIENT ON-SITE PARKING INCLUDING SHARED & LAND-BANKED PARKING	1,403 MORE SPACES REQUIRED 4% FEWER THAN BASE PLAN; SUFFICIENT PARKING INCLUDING SHARED & LAND-BANKED
COMMUNITY SERVICES	NO NEW SCHOOL CHILDREN; ADDED POLICE-FIRE-EMS AND UTILITY SERVICE NEEDS	SAME AS BASE PLAN
TAXES AND ECONOMIC IMPACTS	1,507 CONSTRUCTION JOBS; 1,078 POST-CONSTRUCTION JOBS; TAX POSITIVE TO SCHOOL DISTRICT, TOWN, COUNTY	SIMILAR TO BASE PLAN: 1,279 CONSTRUCTION JOBS; 1,078 POST-CONSTRUCTION JOBS; TAX POSITIVE TO SCHOOL DISTRICT, TOWN, COUNTY
OPEN SPACE	±36.5 ACRES: 48.7% OF THE SITE	±38.4 ACRES: 51.2% OF THE SITE
AIR QUALITY	MINIMAL IMPACTS, ADDRESSED BY SWPPP AND STANDARD EROSION & SEDIMENT CONTROL	SAME AS BASE PLAN
NOISE	NO SIGNIFICANT LONG-TERM IMPACTS	SAME AS BASE PLAN
VISUAL IMPACTS	ENHANCED SCREENING, 3-STORY BUILDING HEIGHTS, LENGTHY SETBACKS AVOID VISUAL IMPACTS; 396,150 S.F. NEW BUILDING AREA INCLUDING NEW ON-SITE STP	SAME AS OR SIMILAR TO BASE PLAN: ENHANCED SCREENING, 3-STORY BUILDING HEIGHTS, LENGTHY SETBACKS AVOID VISUAL IMPACTS; 316,100 S.F. NEW BUILDING AREA
HISTORIC AND CULTURAL RESOURCES	NO IMPACTS	SAME AS BASE PLAN
WATER AND IRRIGATION	98,534 gpd	81,660 gpd
WASTEWATER	87,534 gpd	72,660 gpd
NITROGEN LOAD	32.4 lbs of N./YEAR/ACRE	31.7 lbs of N./YEAR/ACRE

DRAINAGE CALCULATIONS

DESCRIPTION	C	A (ACRE)	i (IN/HR)	V=CxixA (CF)	V=CxixA (GALLONS)
LOT 1		12.75			
PERVIOUS	0.30	3.38	3"	11,042	82,598
IMPERVIOUS	1.00	9.37	3"	102,039	763,254
STORMWATER STORAGE REQ.:				113,082	845,852
LOT 2		12.94			
PERVIOUS	0.30	6.36	3"	20,778	155,420
IMPERVIOUS	1.00	6.58	3"	71,656	535,988
STORMWATER STORAGE REQ.:				92,434	691,409
LOT 3		2.15			
PERVIOUS	0.30	0.84	3"	2,744	20,527
IMPERVIOUS	1.00	1.31	3"	14,266	106,709
STORMWATER STORAGE REQ.:				17,010	127,236
LOT 4		4.90			
PERVIOUS	0.30	2.93	3"	9,572	71,601
IMPERVIOUS	1.00	1.97	3"	21,453	160,471
STORMWATER STORAGE REQ.:				31,026	232,072
LOT 5		5.84			
PERVIOUS	0.30	2.24	3"	7,318	54,739
IMPERVIOUS	1.00	3.60	3"	39,204	293,246
STORMWATER STORAGE REQ.:				46,522	347,985
LOT 6		3.97			
PERVIOUS	0.30	1.14	3"	3,724	27,858
IMPERVIOUS	1.00	2.83	3"	30,819	230,524
STORMWATER STORAGE REQ.:				34,543	258,382
LOT 7		4.20			
PERVIOUS	0.30	1.15	3"	3,757	28,103
IMPERVIOUS	1.00	3.05	3"	33,215	248,444
STORMWATER STORAGE REQ.:				36,972	276,547
LOT 8		4.28			
PERVIOUS	0.30	1.28	3"	4,182	31,280
IMPERVIOUS	1.00	3.00	3"	32,670	244,372
STORMWATER STORAGE REQ.:				36,852	275,651
COMMON LOT 9[3]		23.95			
PERVIOUS AREA DIFFERENCE		5.00			
PERVIOUS	0.30	14.94	8"	130,157	973,576
IMPERVIOUS	1.00	4.01	8"	116,450	871,049
STORMWATER STORAGE PROVIDED:				308,627	2,308,530
TOTAL STORMWATER STORAGE REQ.:				717,067	5,363,664

1. DEVELOPMENT LOTS 1 THROUGH 8 SHALL BE FORMALLY DESIGNED AT THE TIME INDIVIDUAL APPLICATIONS ARE SUBMITTED TO THE TOWN FOR COMMERCIAL SITE PLAN APPROVALS. SITE PLANS WILL MEET THE COMMERCIAL SITE PLAN STANDARDS OF THE TOWN OF SMITHTOWN, INCLUDING STORMWATER SYSTEMS DESIGNED TO STORE THE VOLUME OF A 3-INCH RAIN EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY THE TOWN ENGINEERING DEPARTMENT.
2. DRAINAGE DESIGN FOR COMMON LOT 9 – WHICH INCLUDES PRIVATE ROADWAY, PONDS, DRAINAGE RESERVE AREAS, AREAS TO REMAIN NATURAL, AS WELL AS THE AREA SURROUNDING THE ON-SITE TREATMENT FACILITY – HAVE BEEN DESIGNED TO STORE THE VOLUME OF AN 8-INCH RAINFALL EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY §248-39.B.2 OF THE TOWN CODE, AND AS CONFIRMED BY THE TOWN ENGINEERING DEPARTMENT.
3. STORMWATER STORAGE PROVIDED FOR THE COMMON LOT 9 IS BASED ON THE TRIBUTARY AREA AS SHOWN ON DRAWINGS C-1 TO C-4 OF THE PRELIMINARY ENGINEERING PLANS. THERE ARE PORTIONS OF THE COMMON LOT THAT ARE TO REMAIN NATURAL, UNDISTURBED, OR ARE OTHERWISE NOT CAPTURED BY THE PROPOSED STORMWATER MANAGEMENT SYSTEM DUE TO EXISTING DRAINAGE PATTERNS. A CALCULATED RAINFALL RUNOFF VOLUME IS NOT PROVIDED FOR THOSE PORTIONS OF THE COMMON LOT SINCE THEY ARE PART OF THE PROPOSED STORMWATER SYSTEM AND THERE IS NO CHANGE FROM EXISTING CONDITIONS.



ALTERNATIVE PLAN NO. 1

- 100-ROOM HOTEL (50 FEWER THAN PROPOSED ACTION-BASE PLAN)
- 150,000 S.F. MEDICAL OFFICE (20,000 MORE S.F. THAN PROPOSED ACTION-BASE PLAN)
- 150 ASSISTED LIVING UNITS (70 FEWER THAN PROPOSED ACTION-BASE PLAN)

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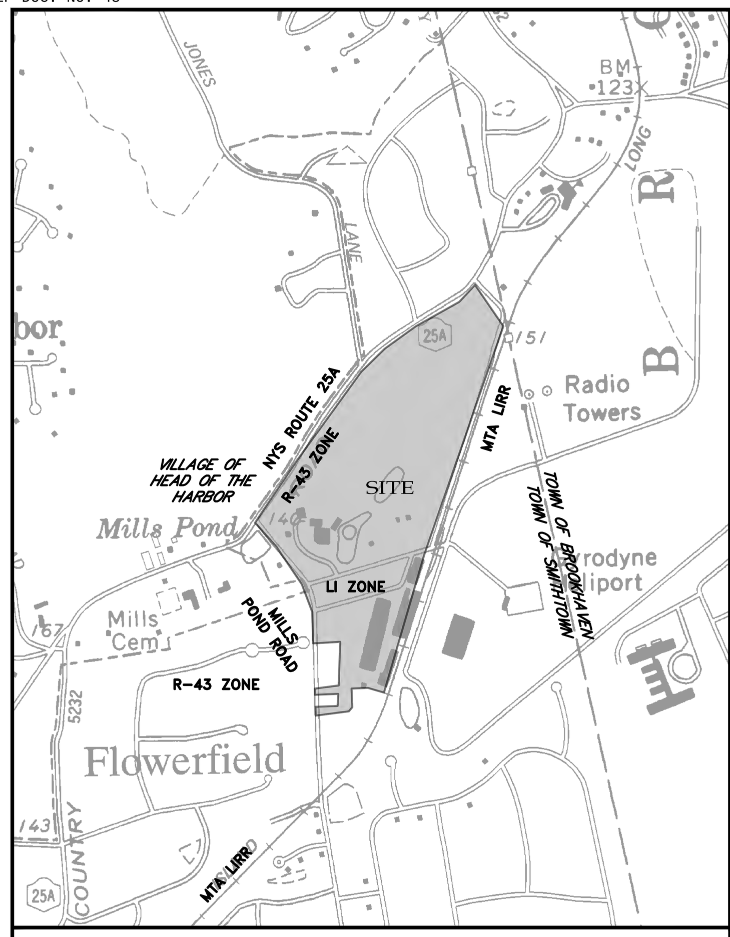
NOVEMBER 2019

Figure 19-1: Alternative Plan 1

GRAPHIC SCALE
(IN FEET)
HORIZ. 1 inch = 100 ft.



KEY LOCATION MAP
(SCALE 1"=600'±)

EXISTING AND PROPOSED DEVELOPMENT DATA

LOT NUMBER	LOT SIZE (ACRES)	LAND USE	BUILDING SIZE/YIELD	
1	12.75	EXISTING MIXED-USE BUILDINGS	132,719	S.F.
2	12.94	EXISTING CATERING HALL	34,685	S.F.
3	2.15	PROPOSED ADDITIONAL PARKING	NA	
4	5.46	PROPOSED GENERAL OFFICE	50,000	S.F.
5	5.29	PROPOSED MEDICAL OR R&D OFFICE	53,000	S.F.
6	4.14	PROPOSED ASSISTED LIVING	120,250	S.F.
			192	UNITS
7	4.20	PROPOSED MEDICAL OR R&D OFFICE	50,500	S.F.
8	4.12	PROPOSED MEDICAL OR R&D OFFICE	46,500	S.F.
9	23.93	PROPOSED COMMON AREA AND STP	7,950	S.F.
TOTAL	74.98			

LANDSCAPE COVERAGE DATA

LOT NUMBER	LANDSCAPE AREA (ACRES)	LOT AREA (ACRES)	PERCENTAGE OF LANDSCAPED AREAS
1	3.38	12.75	27%
2	6.36	12.94	49%
3	0.84	2.15	39%
4	2.93	5.46	54%
5	2.24	5.29	42%
6	1.14	4.14	28%
7	1.15	4.20	27%
8	1.27	4.12	31%
9	19.92	23.93	83%
TOTAL	39.23	74.98	52%

COMPARISON TO BASE PLAN

ENVIRONMENTAL RESOURCE	BASE PLAN/PROPOSED ACTION	ALTERNATIVE 2
GEOLOGY	NO IMPACTS	SAME AS BASE PLAN
SOILS	NO IMPACTS	SAME AS BASE PLAN
TOPOGRAPHY (GRADING AND EXCAVATION AREA FROM BUILDING-PARKING FOOTPRINT)	137,350 S.F. NEW BUILDING FOOTPRINT INCLUDING NEW ON-SITE STP	SIMILAR TO (SMALLER THAN) BASE PLAN: 114,700 S.F. NEW BUILDING FOOTPRINT ±20,650 S.F. LARGER PARKING AREA NEEDED
VEGETATION AND WILDLIFE	HABITATS CONVERT TO HARDSCAPE OR SUCCESSIONAL FORESTS	SIMILAR TO BASE PLAN AND THE ADDITIONAL OPEN SPACE WOULD TRANSITION TO SUCCESSIONAL FOREST
WASTEWATER TREATMENT	ON-SITE 100 MGD STP	SAME AS BASE PLAN
TRAFFIC GENERATION	324 TO 538 TRIPS INCLUDING INTERNAL TRIPS	SIMILAR TO BASE PLAN: 260 TO 555 TRIPS INCLUDING INTERNAL TRIPS
OFF-SITE TRAFFIC MITIGATION	MITIGATION ADDRESSES OFF-SITE IMPACTS & EXISTING CONCERNS AT 2 LOCATIONS	SAME MITIGATION AS BASE PLAN
PARKING	1,466 MORE SPACES REQUIRED SUFFICIENT ON-SITE PARKING INCLUDING SHARED & LAND-BANKED PARKING	1,525 MORE SPACES REQUIRED 4% MORE THAN BASE PLAN; SUFFICIENT PARKING INCLUDING SHARED & LAND-BANKED
COMMUNITY SERVICES	NO NEW SCHOOL CHILDREN; ADDED POLICE-FIRE-EMS AND UTILITY SERVICE NEEDS	SAME AS BASE PLAN
TAXES AND ECONOMIC IMPACTS	1,507 CONSTRUCTION JOBS; 1,078 POST-CONSTRUCTION JOBS; TAX POSITIVE TO SCHOOL DISTRICT, TOWN, COUNTY	SIMILAR TO BASE PLAN: 1,298 CONSTRUCTION JOBS; 1,171 POST-CONSTRUCTION JOBS; TAX POSITIVE TO SCHOOL DISTRICT, TOWN, COUNTY
LAND USE AND OPEN SPACE	±36.5 ACRES: 48.7% OF THE SITE	±19.9 ACRES: 25.5% OF THE SITE
AIR QUALITY	MINIMAL IMPACTS, ADDRESSED BY SWPPP AND STANDARD EROSION & SEDIMENT CONTROL	SAME AS BASE PLAN
NOISE	NO SIGNIFICANT LONG-TERM IMPACTS	SAME AS BASE PLAN
VISUAL IMPACTS	ENHANCED SCREENING, 3-STORY BUILDING HEIGHTS, LENGTHY SETBACKS AVOID VISUAL IMPACTS; 396,150 S.F. NEW BUILDING AREA INCLUDING NEW ON-SITE STP	SAME AS OR SIMILAR TO BASE PLAN: ENHANCED SCREENING, 3-STORY BUILDING HEIGHTS, LENGTHY SETBACKS AVOID VISUAL IMPACTS; 320,425 S.F. NEW BUILDING AREA
HISTORIC AND CULTURAL RESOURCES	NO IMPACTS	SAME AS BASE PLAN
WATER AND IRRIGATION	98,534 gpd	68,280 gpd
WASTEWATER	87,534 gpd	59,280 gpd
NITROGEN LOAD	32.4 lbs of N./YEAR/ACRE	31.7 lbs of N./YEAR/ACRE

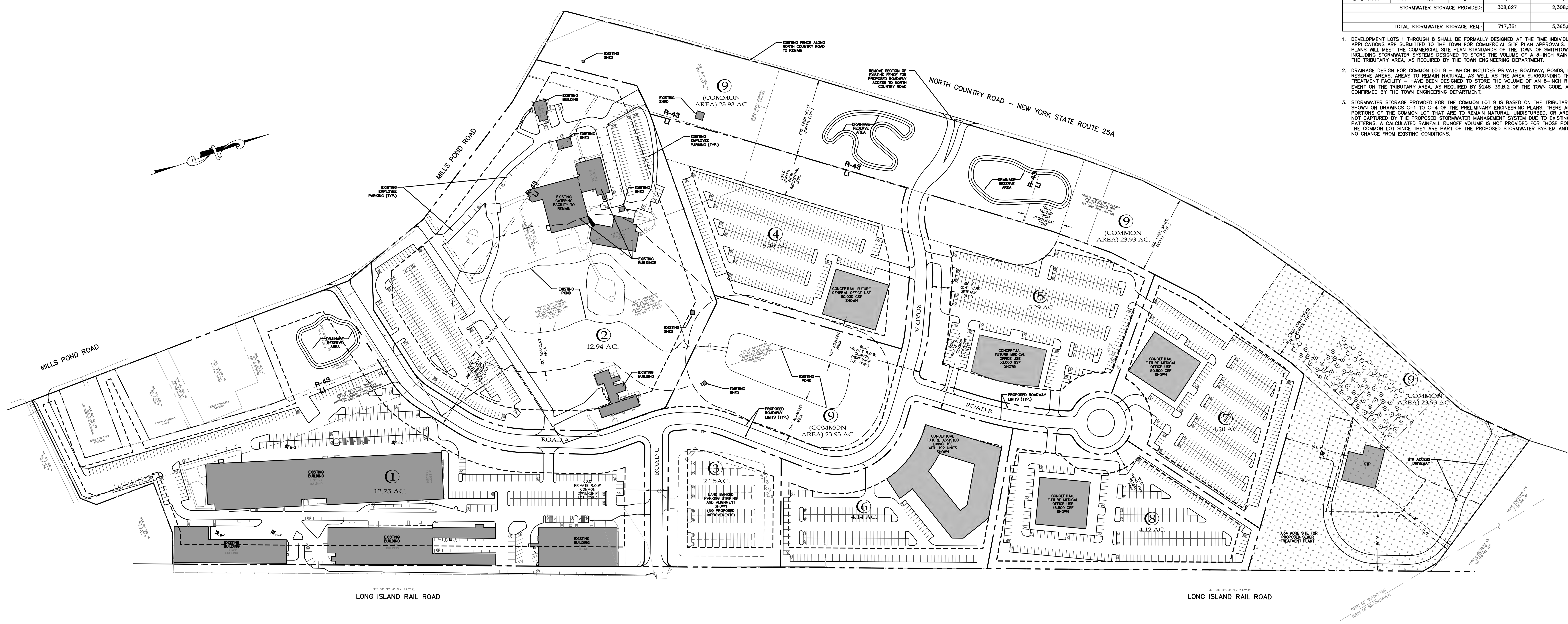
DRAINAGE CALCULATIONS

DESCRIPTION	C	A (ACRE)	i (IN/HR)	V=CxixA (CF)	V=CxixA (GALLONS)
LOT 1		12.75			
PERVIOUS	0.30	3.38	3"	11,042	82,598
IMPERVIOUS	1.00	9.37	3"	102,039	763,254
STORMWATER STORAGE REQ.:				113,082	845,852
LOT 2		12.94			
PERVIOUS	0.30	6.36	3"	20,778	155,420
IMPERVIOUS	1.00	6.58	3"	71,656	535,988
STORMWATER STORAGE REQ.:				92,434	691,409
LOT 3		2.15			
PERVIOUS	0.30	0.84	3"	2,744	20,527
IMPERVIOUS	1.00	1.31	3"	14,266	106,709
STORMWATER STORAGE REQ.:				17,010	127,236
LOT 4		5.46			
PERVIOUS	0.30	2.93	3"	9,572	71,601
IMPERVIOUS	1.00	2.53	3"	27,552	206,087
STORMWATER STORAGE REQ.:				37,124	277,688
LOT 5		5.29			
PERVIOUS	0.30	2.24	3"	7,318	54,739
IMPERVIOUS	1.00	3.05	3"	33,214	248,444
STORMWATER STORAGE REQ.:				40,533	303,184
LOT 6		4.14			
PERVIOUS	0.30	1.14	3"	3,724	27,858
IMPERVIOUS	1.00	3.00	3"	32,670	244,372
STORMWATER STORAGE REQ.:				36,394	272,230
LOT 7		4.20			
PERVIOUS	0.30	1.15	3"	3,757	28,103
IMPERVIOUS	1.00	3.05	3"	33,215	248,444
STORMWATER STORAGE REQ.:				36,972	276,547
LOT 8		4.12			
PERVIOUS	0.30	1.27	3"	4,149	31,035
IMPERVIOUS	1.00	2.85	3"	31,037	232,153
STORMWATER STORAGE REQ.:				35,186	263,188
COMMON LOT 9[3]		23.93			
PERVIOUS AREA DIFFERENCE		4.98			
PERVIOUS	0.30	14.94	8"	130,157	973,576
IMPERVIOUS	1.00	4.01	8"	116,450	871,049
STORMWATER STORAGE PROVIDED:				308,627	2,308,530
TOTAL STORMWATER STORAGE REQ.:				717,361	5,365,863

1. DEVELOPMENT LOTS 1 THROUGH 8 SHALL BE FORMALLY DESIGNED AT THE TIME INDIVIDUAL APPLICATIONS ARE SUBMITTED TO THE TOWN FOR COMMERCIAL SITE PLAN APPROVALS. SITE PLANS WILL MEET THE COMMERCIAL SITE PLAN STANDARDS OF THE TOWN OF SMITHTOWN, INCLUDING STORMWATER SYSTEMS DESIGNED TO STORE THE VOLUME OF A 3-INCH RAIN EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY THE TOWN ENGINEERING DEPARTMENT.

2. DRAINAGE DESIGN FOR COMMON LOT 9 – WHICH INCLUDES PRIVATE ROADWAY, PONDS, DRAINAGE RESERVE AREAS, AREAS TO REMAIN NATURAL, AS WELL AS THE AREA SURROUNDING THE ON-SITE TREATMENT FACILITY – HAVE BEEN DESIGNED TO STORE THE VOLUME OF AN 8-INCH RAINFALL EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY §248-39.B.2 OF THE TOWN CODE, AND AS CONFIRMED BY THE TOWN ENGINEERING DEPARTMENT.

3. STORMWATER STORAGE PROVIDED FOR THE COMMON LOT 9 IS BASED ON THE TRIBUTARY AREA AS SHOWN ON DRAWINGS C-1 TO C-4 OF THE PRELIMINARY ENGINEERING PLANS. THERE ARE PORTIONS OF THE COMMON LOT THAT ARE TO REMAIN NATURAL, UNDISTURBED, OR ARE OTHERWISE NOT CAPTURED BY THE PROPOSED STORMWATER MANAGEMENT SYSTEM DUE TO EXISTING DRAINAGE PATTERNS. A CALCULATED RAINFALL RUNOFF VOLUME IS NOT PROVIDED FOR THOSE PORTIONS OF THE COMMON LOT SINCE THEY ARE PART OF THE PROPOSED STORMWATER SYSTEM AND THERE IS NO CHANGE FROM EXISTING CONDITIONS.



ALTERNATIVE PLAN NO. 2

- NO HOTEL
- 150,000 S.F. MEDICAL OFFICE (20,000 MORE S.F. THAN PROPOSED ACTION-BASE PLAN)
- 50,000 S.F. GENERAL OFFICE (MORE THAN PROPOSED ACTION-BASE PLAN)
- 192 ASSISTED LIVING UNITS (28 FEWER THAN PROPOSED ACTION-BASE PLAN)

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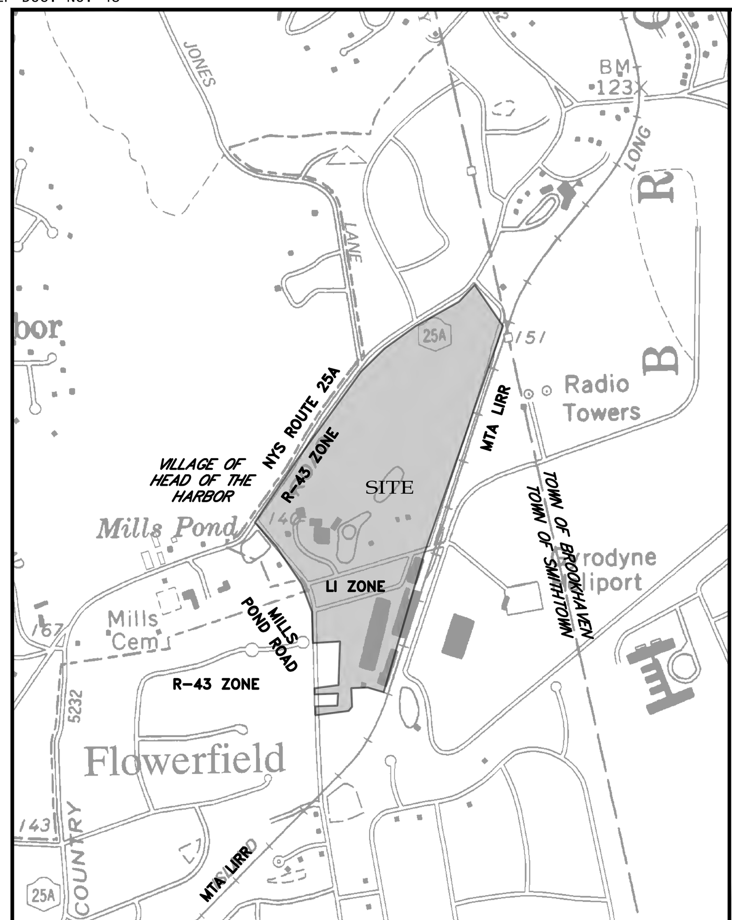
NOVEMBER 2019

Figure 19-2: Alternative Plan 2

GRAPHIC SCALE
(IN FEET)
HORIZ. 1 inch = 100 ft.



KEY LOCATION MAP
(SCALE 1"=600'±)

EXISTING AND PROPOSED DEVELOPMENT DATA

LOT NUMBER	LOT SIZE (ACRES)	LAND USE	BUILDING SIZE/YIELD	
1	12.75	EXISTING MIXED-USE BUILDINGS	132,719	S.F.
2	12.94	EXISTING CATERING HALL	34,685	S.F.
3	2.15	PROPOSED ADDITIONAL PARKING	NA	
4	5.46	PROPOSED HOTEL AND RESTAURANT	87,800	S.F.
			120	ROOMS
5	5.84	PROPOSED MEDICAL OR R&D OFFICE	58,500	S.F.
6	5.47	PROPOSED ASSISTED LIVING	155,500	S.F.
			250	UNITS
7	4.20	PROPOSED MEDICAL OR R&D OFFICE	50,400	S.F.
8	2.79	PROPOSED MEDICAL OR R&D OFFICE	27,100	S.F.
9	23.38	PROPOSED COMMON AREA AND STP	7,950	S.F.
TOTAL	74.98			

LANDSCAPE COVERAGE DATA

LOT NUMBER	LANDSCAPE AREA (ACRES)	LOT AREA (ACRES)	PERCENTAGE OF LANDSCAPED AREAS
1	3.38	12.75	27%
2	6.36	12.94	49%
3	0.84	2.15	39%
4	2.65	6.03	44%
5	2.29	4.95	46%
6	1.32	5.99	22%
7	1.15	3.10	37%
8	0.93	3.06	30%
9	20.00	24.01	83%
TOTAL	38.92	74.98	52%

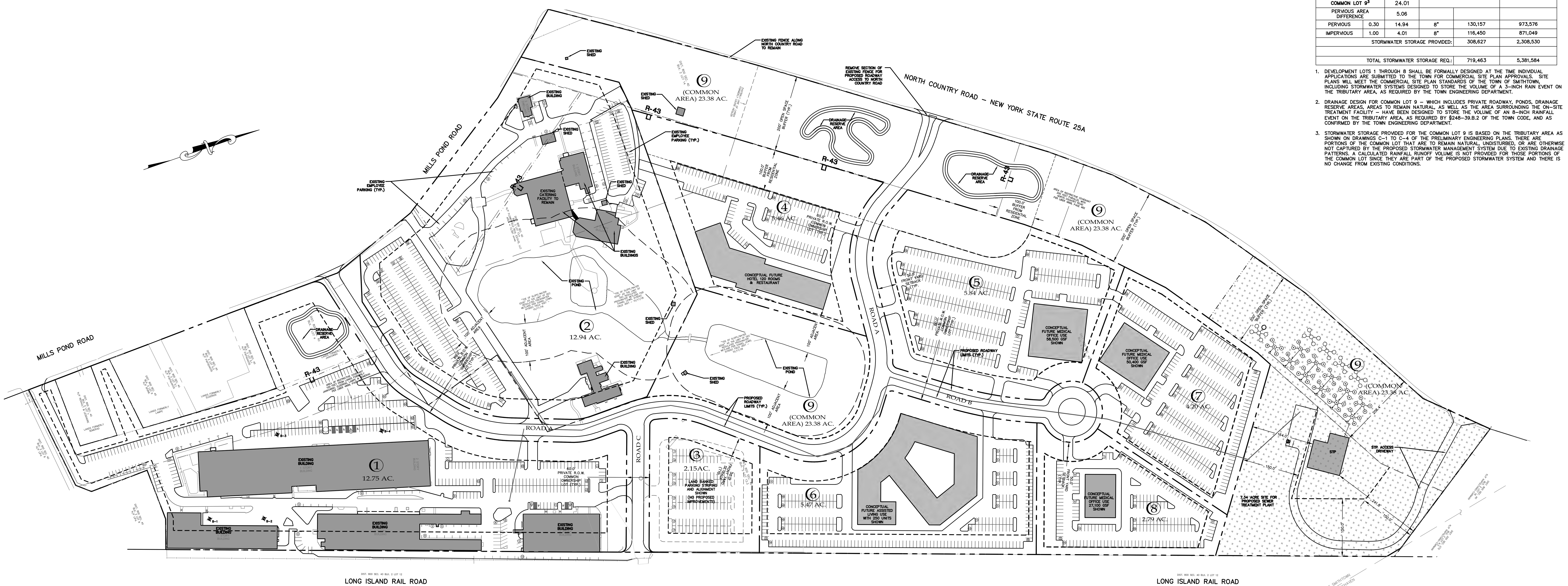
COMPARISON TO BASE PLAN

ENVIRONMENTAL RESOURCE	BASE PLAN/PROPOSED ACTION	ALTERNATIVE 3
GEOLOGY	NO IMPACTS	SAME AS BASE PLAN
SOILS	NO IMPACTS	SAME AS BASE PLAN
TOPOGRAPHY (GRADING AND EXCAVATION AREA FROM BUILDING-PARKING FOOTPRINT)	137,350 S.F. NEW BUILDING FOOTPRINT INCLUDING NEW ON-SITE STP	SIMILAR TO (SMALLER THAN) BASE PLAN: 134,383 S.F. NEW BUILDING FOOTPRINT ±2,100 S.F. SMALLER PARKING AREA NEEDED
VEGETATION AND WILDLIFE	HABITATS CONVERT TO HARDSCAPE OR SUCCESSIONAL FORESTS	SIMILAR TO BASE PLAN AND THE ADDITIONAL OPEN SPACE WOULD TRANSITION TO SUCCESSIONAL FOREST
WASTEWATER TREATMENT	ON-SITE 100 MGD STP	SAME AS BASE PLAN
TRAFFIC GENERATION	324 TO 538 TRIPS INCLUDING INTERNAL TRIPS	SIMILAR TO BASE PLAN: 319 TO 538 TRIPS INCLUDING INTERNAL TRIPS
OFF-SITE TRAFFIC MITIGATION	MITIGATION ADDRESSES OFF-SITE IMPACTS & EXISTING CONCERNS AT 2 LOCATIONS	SAME MITIGATION AS BASE PLAN
PARKING	1,466 MORE SPACES REQUIRED SUFFICIENT ON-SITE PARKING INCLUDING SHARED & LAND-BANKED PARKING	1,460 MORE SPACES REQUIRED 0.4% FEWER THAN BASE PLAN; SUFFICIENT PARKING INCLUDING SHARED & LAND-BANKED
COMMUNITY SERVICES	NO NEW SCHOOL CHILDREN; ADDED POLICE-FIRE-EMS AND UTILITY SERVICE NEEDS	SAME AS BASE PLAN
TAXES AND ECONOMIC IMPACTS	1,507 CONSTRUCTION JOBS; 1,078 POST-CONSTRUCTION JOBS; TAX POSITIVE TO SCHOOL DISTRICT, TOWN, COUNTY	SIMILAR TO BASE PLAN: 1,531 CONSTRUCTION JOBS; 1,106 POST-CONSTRUCTION JOBS; TAX POSITIVE TO SCHOOL DISTRICT, TOWN, COUNTY
OPEN SPACE	±36.5 ACRES: 48.7% OF THE SITE	±20.0 ACRES: 26.1% OF THE SITE
AIR QUALITY	MINIMAL IMPACTS, ADDRESSED BY SWPPP AND STANDARD EROSION & SEDIMENT CONTROL	SAME AS BASE PLAN
NOISE	NO SIGNIFICANT LONG-TERM IMPACTS	SAME AS BASE PLAN
VISUAL IMPACTS	ENHANCED SCREENING, 3-STORY BUILDING HEIGHTS, LENGTHY SETBACKS AVOID VISUAL IMPACTS; 396,150 S.F. NEW BUILDING AREA INCLUDING NEW ON-SITE STP	SAME AS OR SIMILAR TO BASE PLAN: ENHANCED SCREENING, 3-STORY BUILDING HEIGHTS, LENGTHY SETBACKS AVOID VISUAL IMPACTS; 379,080 S.F. NEW BUILDING AREA
HISTORIC AND CULTURAL RESOURCES	NO IMPACTS	SAME AS BASE PLAN
WATER	98,534 gpd	95,460 gpd
WASTEWATER	87,534 gpd	86,460 gpd
NITROGEN LOAD	32.4 lbs of N./YEAR/ACRE	31.7 lbs of N./YEAR/ACRE

DRAINAGE CALCULATIONS

DESCRIPTION	C	A (ACRE)	i (IN/HR)	V=CxixA (CF)	V=CxixA (GALLONS)
LOT 1		12.75			
PERVIOUS	0.30	3.38	3"	11,042	82,598
IMPERVIOUS	1.00	9.37	3"	102,039	763,254
			STORMWATER STORAGE REQ.:	113,082	845,852
LOT 2		12.94			
PERVIOUS	0.30	6.36	3"	20,778	155,420
IMPERVIOUS	1.00	6.58	3"	71,656	535,988
			STORMWATER STORAGE REQ.:	92,434	691,409
LOT 3		2.15			
PERVIOUS	0.30	0.84	3"	2,744	20,527
IMPERVIOUS	1.00	1.31	3"	14,266	106,709
			STORMWATER STORAGE REQ.:	17,010	127,236
LOT 4		6.03			
PERVIOUS	0.30	2.65	3"	8,658	64,758
IMPERVIOUS	1.00	3.38	3"	36,808	275,325
			STORMWATER STORAGE REQ.:	45,466	340,084
LOT 5		4.95			
PERVIOUS	0.30	2.29	3"	7,481	55,961
IMPERVIOUS	1.00	2.66	3"	28,967	216,676
			STORMWATER STORAGE REQ.:	36,449	272,637
LOT 6		5.99			
PERVIOUS	0.30	1.32	3"	4,312	32,257
IMPERVIOUS	1.00	4.67	3"	50,856	380,405
			STORMWATER STORAGE REQ.:	55,169	412,662
LOT 7		3.10			
PERVIOUS	0.30	1.15	3"	3,757	28,103
IMPERVIOUS	1.00	1.95	3"	21,236	158,842
			STORMWATER STORAGE REQ.:	24,993	186,944
LOT 8		3.06			
PERVIOUS	0.30	0.93	3"	3,038	22,727
IMPERVIOUS	1.00	2.13	3"	23,196	173,504
			STORMWATER STORAGE REQ.:	26,234	196,230
COMMON LOT 9[3]		24.01			
PERVIOUS AREA DIFFERENCE		5.06			
PERVIOUS	0.30	14.94	8"	130,157	973,576
IMPERVIOUS	1.00	4.01	8"	116,450	871,049
			STORMWATER STORAGE PROVIDED:	308,627	2,308,530
			TOTAL STORMWATER STORAGE REQ.:	719,463	5,381,584

1. DEVELOPMENT LOTS 1 THROUGH 8 SHALL BE FORMALLY DESIGNED AT THE TIME INDIVIDUAL APPLICATIONS ARE SUBMITTED TO THE TOWN FOR COMMERCIAL SITE PLAN APPROVALS. SITE PLANS WILL MEET THE COMMERCIAL SITE PLAN STANDARDS OF THE TOWN OF SMITHTOWN, INCLUDING STORMWATER SYSTEMS DESIGNED TO STORE THE VOLUME OF A 3-INCH RAIN EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY THE TOWN ENGINEERING DEPARTMENT.
2. DRAINAGE DESIGN FOR COMMON LOT 9 – WHICH INCLUDES PRIVATE ROADWAY, PONDS, DRAINAGE RESERVE AREAS, AREAS TO REMAIN NATURAL, AS WELL AS THE AREA SURROUNDING THE ON-SITE TREATMENT FACILITY – HAVE BEEN DESIGNED TO STORE THE VOLUME OF AN 8-INCH RAINFALL EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY §248-39.B.2 OF THE TOWN CODE, AND AS CONFIRMED BY THE TOWN ENGINEERING DEPARTMENT.
3. STORMWATER STORAGE PROVIDED FOR THE COMMON LOT 9 IS BASED ON THE TRIBUTARY AREA AS SHOWN ON DRAWINGS C-1 TO C-4 OF THE PRELIMINARY ENGINEERING PLANS. THERE ARE PORTIONS OF THE COMMON LOT THAT ARE TO REMAIN NATURAL, UNDISTURBED, OR ARE OTHERWISE NOT CAPTURED BY THE PROPOSED STORMWATER MANAGEMENT SYSTEM DUE TO EXISTING DRAINAGE PATTERNS. A CALCULATED RAINFALL RUNOFF VOLUME IS NOT PROVIDED FOR THOSE PORTIONS OF THE COMMON LOT SINCE THEY ARE PART OF THE PROPOSED STORMWATER SYSTEM AND THERE IS NO CHANGE FROM EXISTING CONDITIONS.



ALTERNATIVE PLAN NO. 3

- 120-ROOM HOTEL (30 FEWER THAN PROPOSED ACTION-BASE PLAN)
- 136,000 S.F. MEDICAL OFFICE (6,000 MORE S.F. THAN PROPOSED ACTION-BASE PLAN)
- 250 ASSISTED LIVING UNITS (30 MORE THAN PROPOSED ACTION-BASE PLAN)

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1 FLOWERFIELD
ST. JAMES, TOWN OF
SMITHTOWN, SUFFOLK
COUNTY, NEW YORK

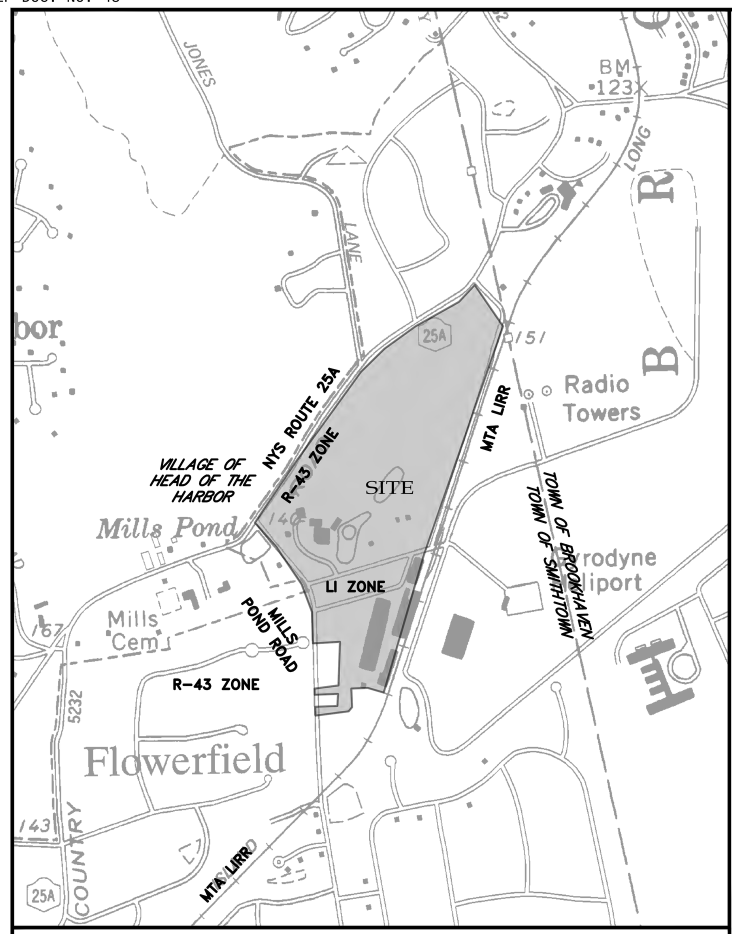
CAMERON ENGINEERING
& ASSOCIATES, LLP

JERRY P. LaRUE
LICENSED LAND SURVEYOR

NOVEMBER 2019

Figure 19-3: Alternative Plan 3

GRAPHIC SCALE
100 0 50 100 200
(IN FEET)
HORIZ. 1 inch = 100 ft.



KEY LOCATION MAP
(SCALE 1"=600'±)

EXISTING AND PROPOSED DEVELOPMENT DATA

LOT NUMBER	LOT SIZE (ACRES)	LAND USE	BUILDING SIZE/YIELD	
1	12.75	EXISTING MIXED-USE BUILDINGS	132,719	S.F.
2	12.94	EXISTING CATERING HALL	34,685	S.F.
3	2.15	PROPOSED ADDITIONAL PARKING	NA	
4	6.03	PROPOSED MEDICAL OR R&D OFFICE	36,500	S.F.
5	4.95	PROPOSED MEDICAL OR R&D OFFICE	55,350	S.F.
6	5.99	PROPOSED MEDICAL OR R&D OFFICE	74,650	S.F.
7	3.10	PROPOSED MEDICAL OR R&D OFFICE	38,750	S.F.
8	3.06	PROPOSED MEDICAL OR R&D OFFICE	38,750	S.F.
9	24.01	PROPOSED COMMON AREA	NA	
TOTAL	74.98			

LANDSCAPE COVERAGE DATA

LOT NUMBER	LANDSCAPE AREA (ACRES)	LOT AREA (ACRES)	PERCENTAGE OF LANDSCAPED AREAS
1	3.38	12.75	27%
2	6.36	12.94	49%
3	0.84	2.15	39%
4	3.31	6.03	55%
5	1.81	4.95	37%
6	2.71	5.99	45%
7	0.92	3.10	30%
8	0.84	3.06	27%
9	20.00	24.01	83%
TOTAL	40.17	74.98	54%

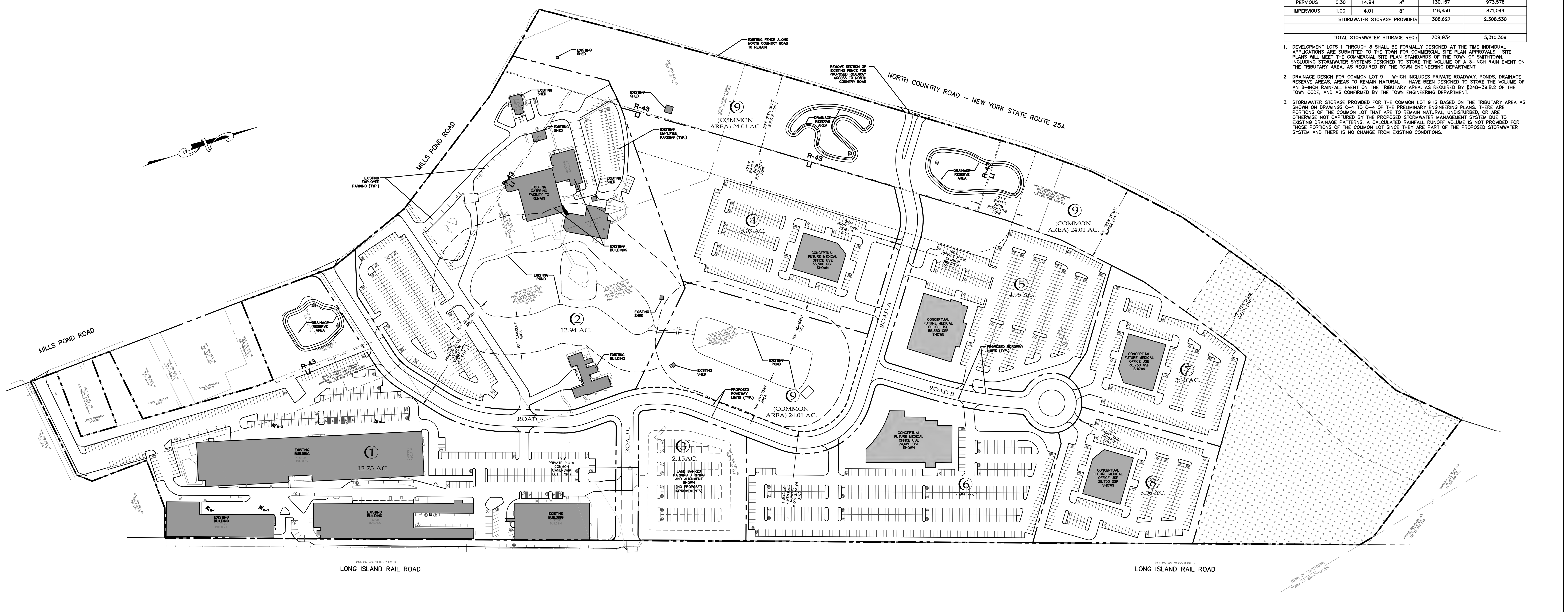
COMPARISON TO BASE PLAN

ENVIRONMENTAL RESOURCE	BASE PLAN/PROPOSED ACTION	ALTERNATIVE 4
GEOLOGY	NO IMPACTS	SAME AS BASE PLAN
SOILS	NO IMPACTS	SAME AS BASE PLAN
TOPOGRAPHY (GRADING AND EXCAVATION AREA FROM BUILDING-PARKING FOOTPRINT)	137,350 S.F. NEW BUILDING FOOTPRINT INCLUDING NEW ON-SITE STP	SLIGHTLY MORE THAN BASE PLAN: 81,333 S.F. NEW BUILDING FOOTPRINT ±56,350 S.F. LARGER PARKING AREA NEEDED
VEGETATION AND WILDLIFE	HABITATS CONVERT TO HARDSCAPE OR SUCCESSIONAL FORESTS	SIMILAR TO BASE PLAN AND THE ADDITIONAL OPEN SPACE WOULD TRANSITION TO SUCCESSIONAL FOREST
WASTEWATER TREATMENT	ON-SITE 100 MGD STP	NO STP – NOTABLY LESS BENEFIT COMPARED TO THE BASE PLAN
TRAFFIC GENERATION	324 TO 538 TRIPS INCLUDING INTERNAL TRIPS	NOTABLY MORE THAN BASE PLAN: 294 TO 697 TRIPS INCLUDING INTERNAL TRIPS
OFF-SITE TRAFFIC MITIGATION	MITIGATION ADDRESSES OFF-SITE IMPACTS & EXISTING CONCERNS AT 2 LOCATIONS	MORE MITIGATION THAN BASE PLAN
PARKING	1,466 MORE SPACES REQUIRED SUFFICIENT ON-SITE PARKING INCLUDING SHARED & LAND-BANKED PARKING	1,627 MORE SPACES REQUIRED 11% MORE THAN BASE PLAN; SUFFICIENT PARKING INCLUDING SHARED & LAND-BANKED
COMMUNITY SERVICES	NO NEW SCHOOL CHILDREN; ADDED POLICE-FIRE-EMS AND UTILITY SERVICE NEEDS	SAME AS BASE PLAN
TAXES AND ECONOMIC IMPACTS	1,507 CONSTRUCTION JOBS; 1,078 POST-CONSTRUCTION JOBS; TAX POSITIVE TO SCHOOL DISTRICT, TOWN, COUNTY	NOTABLY DIFFERENT FROM BASE PLAN: 969 CONSTRUCTION JOBS; 1,349 POST-CONSTRUCTION JOBS; TAX POSITIVE TO SCHOOL DISTRICT, TOWN, COUNTY
OPEN SPACE	±36.5 ACRES: 48.7% OF THE SITE	±20.0 ACRES: 27.3% OF THE SITE
AIR QUALITY	MINIMAL IMPACTS, ADDRESSED BY SWPPP AND STANDARD EROSION & SEDIMENT CONTROL	SAME AS BASE PLAN
NOISE	NO SIGNIFICANT LONG-TERM IMPACTS	SAME AS BASE PLAN
VISUAL IMPACTS	ENHANCED SCREENING, 3-STORY BUILDING HEIGHTS, LENGTHY SETBACKS AVOID VISUAL IMPACTS; 396,150 S.F. NEW BUILDING AREA INCLUDING NEW ON-SITE STP	SMALLER THAN BASE PLAN: ENHANCED SCREENING, 3-STORY BUILDING HEIGHTS, LENGTHY SETBACKS AVOID VISUAL IMPACTS; 244,000 S.F. NEW BUILDING AREA
HISTORIC AND CULTURAL RESOURCES	NO IMPACTS	SAME AS BASE PLAN
WATER AND IRRIGATION	98,534 GPD	51,234 GPD
WASTEWATER	87,534 GPD	43,234 GPD
NITROGEN LOAD	32.4 lbs of N./YEAR/ACRE	87.6 lbs of N./YEAR/ACRE

DRAINAGE CALCULATIONS

DESCRIPTION	C	A (ACRE)	i (IN/HR)	V=CxixA (CF)	V=CxixA (GALLONS)
LOT 1		12.75			
PERVIOUS	0.30	3.38	3"	11,042	82,598
IMPERVIOUS	1.00	9.37	3"	102,039	763,254
STORMWATER STORAGE REQ.:				113,082	845,852
LOT 2		12.94			
PERVIOUS	0.30	6.36	3"	20,778	155,420
IMPERVIOUS	1.00	6.58	3"	71,656	535,988
STORMWATER STORAGE REQ.:				92,434	691,409
LOT 3		2.15			
PERVIOUS	0.30	0.84	3"	2,744	20,527
IMPERVIOUS	1.00	1.31	3"	14,266	106,709
STORMWATER STORAGE REQ.:				17,010	127,236
LOT 4		6.03			
PERVIOUS	0.30	3.31	3"	10,814	80,887
IMPERVIOUS	1.00	2.72	3"	29,621	221,564
STORMWATER STORAGE REQ.:				40,435	302,451
LOT 5		4.95			
PERVIOUS	0.30	1.81	3"	5,913	44,231
IMPERVIOUS	1.00	3.14	3"	34,195	255,776
STORMWATER STORAGE REQ.:				40,108	300,007
LOT 6		5.99			
PERVIOUS	0.30	2.71	3"	8,854	66,225
IMPERVIOUS	1.00	3.28	3"	35,719	267,180
STORMWATER STORAGE REQ.:				44,573	333,404
LOT 7		3.10			
PERVIOUS	0.30	0.92	3"	3,006	22,482
IMPERVIOUS	1.00	2.18	3"	23,740	177,577
STORMWATER STORAGE REQ.:				26,746	200,059
LOT 8		3.06			
PERVIOUS	0.30	0.84	3"	2,744	20,527
IMPERVIOUS	1.00	2.22	3"	24,176	180,835
STORMWATER STORAGE REQ.:				26,920	201,362
COMMON LOT 9[3]		24.01			
PERVIOUS AREA DIFFERENCE		5.06			
PERVIOUS	0.30	14.94	8"	130,157	973,576
IMPERVIOUS	1.00	4.01	8"	116,450	871,049
STORMWATER STORAGE PROVIDED:				308,627	2,308,530
TOTAL STORMWATER STORAGE REQ.:				709,934	5,310,309

1. DEVELOPMENT LOTS 1 THROUGH 8 SHALL BE FORMALLY DESIGNED AT THE TIME INDIVIDUAL APPLICATIONS ARE SUBMITTED TO THE TOWN FOR COMMERCIAL SITE PLAN APPROVALS. SITE PLANS WILL MEET THE COMMERCIAL SITE PLAN STANDARDS OF THE TOWN OF SMITHTOWN, INCLUDING STORMWATER SYSTEMS DESIGNED TO STORE THE VOLUME OF A 3-INCH RAIN EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY THE TOWN ENGINEERING DEPARTMENT.
2. DRAINAGE DESIGN FOR COMMON LOT 9 – WHICH INCLUDES PRIVATE ROADWAY, PONDS, DRAINAGE RESERVE AREAS, AREAS TO REMAIN NATURAL – HAVE BEEN DESIGNED TO STORE THE VOLUME OF AN 8-INCH RAINFALL EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY §248-39.B.2 OF THE TOWN CODE, AND AS CONFIRMED BY THE TOWN ENGINEERING DEPARTMENT.
3. STORMWATER STORAGE PROVIDED FOR THE COMMON LOT 9 IS BASED ON THE TRIBUTARY AREA AS SHOWN ON DRAWINGS C-1 TO C-4 OF THE PRELIMINARY ENGINEERING PLANS. THERE ARE PORTIONS OF THE COMMON LOT THAT ARE TO REMAIN NATURAL, UNDISTURBED, OR ARE OTHERWISE NOT CAPTURED BY THE PROPOSED STORMWATER MANAGEMENT SYSTEM DUE TO EXISTING DRAINAGE PATTERNS. A CALCULATED RAINFALL RUNOFF VOLUME IS NOT PROVIDED FOR THOSE PORTIONS OF THE COMMON LOT SINCE THEY ARE PART OF THE PROPOSED STORMWATER SYSTEM AND THERE IS NO CHANGE FROM EXISTING CONDITIONS.



ALTERNATIVE PLAN NO. 4

- 244,000 S.F. MEDICAL OFFICE (114,000 MORE S.F. THAN PROPOSED ACTION-BASE PLAN)
- NOTE: THIS ALTERNATIVE IS NOT BEING PROPOSED, AND DOES NOT NECESSARILY REQUIRE A SUBDIVISION

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SMITHTOWN, SUFFOLK
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Long Island office
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Upstate New York office
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Livonia, NY 14487
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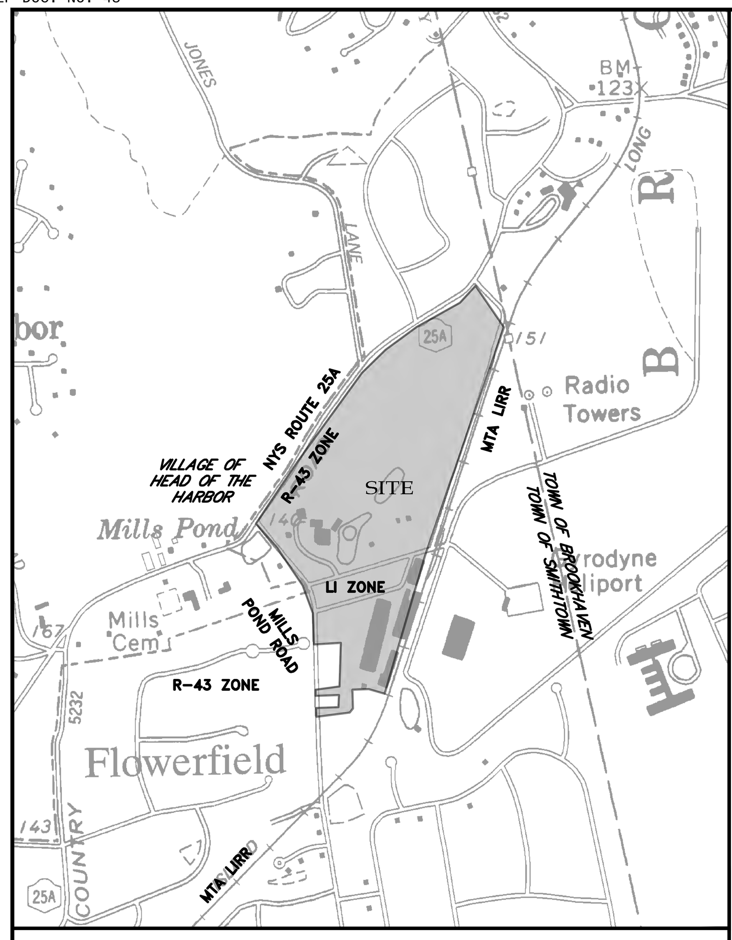
NOVEMBER 2019

Figure 19-4: Alternative Plan 4

GRAPHIC SCALE
(IN FEET)
HORIZ. 1 inch = 100 ft.



KEY LOCATION MAP
(SCALE 1"=600'±)

EXISTING AND PROPOSED DEVELOPMENT DATA

LOT NUMBER	LOT SIZE (ACRES)	LAND USE	BUILDING SIZE/YIELD	
1	12.75	EXISTING MIXED-USE BUILDINGS	132,719	S.F.
2	12.94	EXISTING CATERING HALL	34,685	S.F.
3	2.15	PROPOSED ADDITIONAL PARKING	NA	
4	6.03	PROPOSED LIGHT INDUSTRY	75,000	S.F.
5	4.95	PROPOSED LIGHT INDUSTRY	81,600	S.F.
6	5.99	PROPOSED LIGHT INDUSTRY	94,680	S.F.
7	3.10	PROPOSED LIGHT INDUSTRY	81,600	S.F.
8	3.06	PROPOSED LIGHT INDUSTRY	49,620	S.F.
9	24.01	PROPOSED COMMON AREA	NA	
TOTAL	74.98			

LANDSCAPE COVERAGE DATA

LOT NUMBER	LANDSCAPE AREA (ACRES)	LOT AREA (ACRES)	PERCENTAGE OF LANDSCAPED AREAS
1	3.38	12.75	27%
2	6.36	12.94	49%
3	0.84	2.15	39%
4	3.31	6.03	55%
5	1.81	4.95	37%
6	2.71	5.99	45%
7	0.92	3.10	30%
8	0.84	3.06	27%
9	20.00	24.01	83%
TOTAL	40.17	74.98	54%

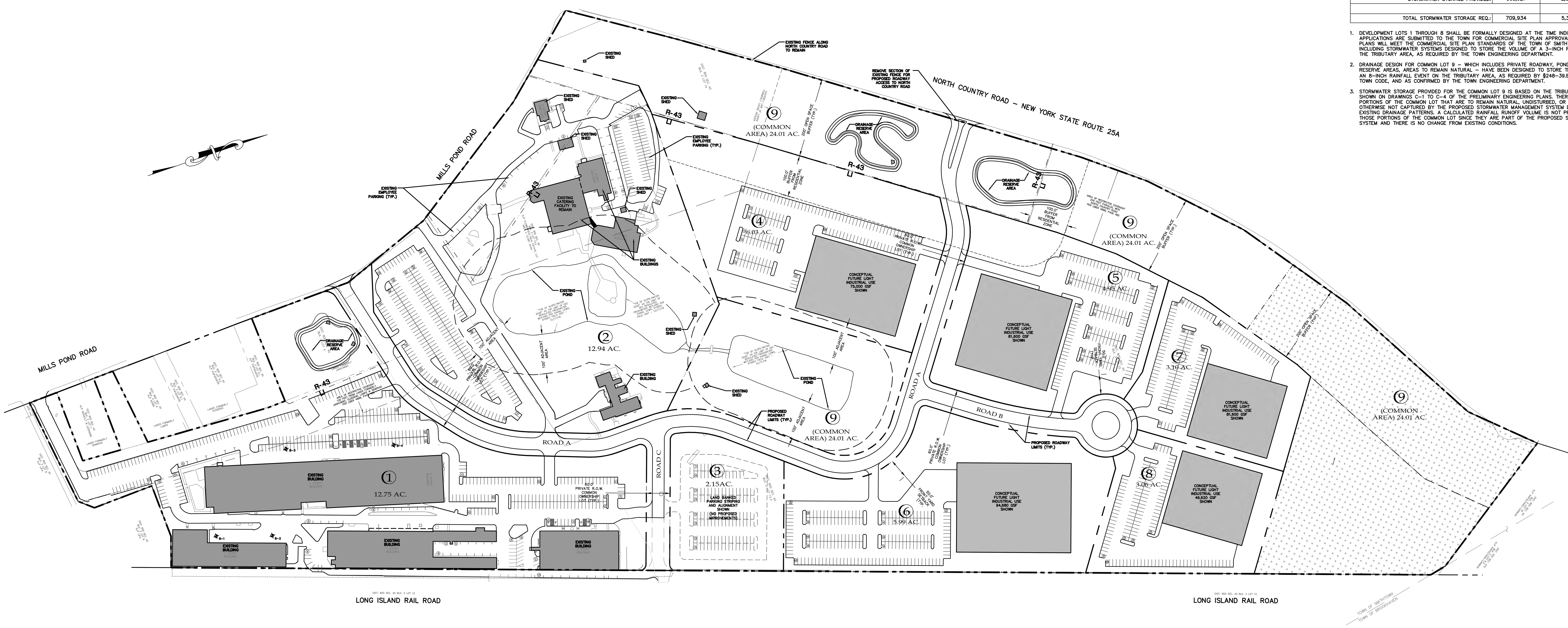
COMPARISON TO BASE PLAN

ENVIRONMENTAL RESOURCE	BASE PLAN/PROPOSED ACTION	ALTERNATIVE 5 (NOT PROPOSED)
GEOLOGY	NO IMPACTS	SAME AS BASE PLAN
SOILS	NO IMPACTS	SAME AS BASE PLAN
TOPOGRAPHY (GRADING AND EXCAVATION AREA FROM BUILDING-PARKING FOOTPRINT)	137,350 S.F. NEW BUILDING FOOTPRINT INCLUDING NEW ON-SITE STP	SLIGHTLY LESS THAN BASE PLAN: 382,500 S.F. NEW BUILDING FOOTPRINT ±245,350 S.F. SMALLER PARKING AREA NEEDED
VEGETATION AND WILDLIFE	HABITATS CONVERT TO HARDSCAPE OR SUCCESSIONAL FORESTS	SIMILAR TO BASE PLAN AND THE ADDITIONAL OPEN SPACE WOULD TRANSITION TO SUCCESSIONAL FOREST
WASTEWATER TREATMENT	ON-SITE 100 MGD STP	NO STP – NOTABLY LESS BENEFIT COMPARED TO THE BASE PLAN
TRAFFIC GENERATION	324 TO 538 TRIPS INCLUDING INTERNAL TRIPS	FEWER THAN BASE PLAN: 157 TO 260 TRIPS, BUT MUCH HIGHER TRUCK COMPONENT OF ±47 TO 78 TRUCKS PER HOUR (NOTE: THIS IS THE ONLY ALTERNATIVE WITH NOTABLY HIGHER TRUCK TRIP GENERATION THAN THE BASE PLAN)
OFF-SITE TRAFFIC MITIGATION	MITIGATION ADDRESSES OFF-SITE IMPACTS & EXISTING CONCERNS AT 2 LOCATIONS	LIKELY SAME MITIGATION AS BASE PLAN
PARKING	1,466 MORE SPACES REQUIRED SUFFICIENT ON-SITE PARKING INCLUDING SHARED & LAND-BANKED PARKING	765 MORE SPACES REQUIRED 48% FEWER THAN BASE PLAN; SUFFICIENT PARKING ON-SITE
COMMUNITY SERVICES	NO NEW SCHOOL CHILDREN; ADDED POLICE-FIRE-EMS AND UTILITY SERVICE NEEDS	SAME AS BASE PLAN
TAXES AND ECONOMIC IMPACTS	1,507 CONSTRUCTION JOBS; 1,078 POST-CONSTRUCTION JOBS; TAX POSITIVE TO SCHOOL DISTRICT, TOWN, COUNTY	NOTABLY SMALLER THAN BASE PLAN: 781 CONSTRUCTION JOBS; 731 POST-CONSTRUCTION JOBS; TAX POSITIVE TO SCHOOL DISTRICT, TOWN, COUNTY
OPEN SPACE	±36.5 ACRES: 48.7% OF THE SITE	±20.0 ACRES: 27.3% OF THE SITE
AIR QUALITY	MINIMAL IMPACTS, ADDRESSED BY SWPPP AND STANDARD EROSION & SEDIMENT CONTROL	SAME AS BASE PLAN
NOISE	NO SIGNIFICANT LONG-TERM IMPACTS	SAME AS BASE PLAN
VISUAL IMPACTS	ENHANCED SCREENING, 3-STORY BUILDING HEIGHTS, LENGTHY SETBACKS AVOID VISUAL IMPACTS; 396,150 S.F. NEW BUILDING AREA INCLUDING NEW ON-SITE STP	SMALLER THAN BASE PLAN: ENHANCED SCREENING, 1-STORY BUILDING HEIGHTS, LENGTHY SETBACKS AVOID VISUAL IMPACTS; 382,500 S.F. NEW BUILDING AREA
HISTORIC AND CULTURAL RESOURCES	NO IMPACTS	SAME AS BASE PLAN
WATER AND IRRIGATION	98,534 gpd	45,134 gpd
WASTEWATER	87,534 gpd	34,134 gpd
NITROGEN LOAD	32.4 lbs of N./YEAR/ACRE	69.4 lbs of N./YEAR/ACRE

DRAINAGE CALCULATIONS

DESCRIPTION	C	A (ACRE)	i (IN/HR)	V=CxixA (CF)	V=CxixA (GALLONS)
LOT 1		12.75			
PERVIOUS	0.30	3.38	3"	11,042	82,598
IMPERVIOUS	1.00	9.37	3"	102,039	763,254
			STORMWATER STORAGE REQ.:	113,082	845,852
LOT 2		12.94			
PERVIOUS	0.30	6.36	3"	20,778	155,420
IMPERVIOUS	1.00	6.58	3"	71,656	535,988
			STORMWATER STORAGE REQ.:	92,434	691,409
LOT 3		2.15			
PERVIOUS	0.30	0.84	3"	2,744	20,527
IMPERVIOUS	1.00	1.31	3"	14,266	106,709
			STORMWATER STORAGE REQ.:	17,010	127,236
LOT 4		6.03			
PERVIOUS	0.30	3.31	3"	10,814	80,887
IMPERVIOUS	1.00	2.72	3"	29,621	221,564
			STORMWATER STORAGE REQ.:	40,435	302,451
LOT 5		4.95			
PERVIOUS	0.30	1.81	3"	5,913	44,231
IMPERVIOUS	1.00	3.14	3"	34,195	255,776
			STORMWATER STORAGE REQ.:	40,108	300,007
LOT 6		5.99			
PERVIOUS	0.30	2.71	3"	8,854	66,225
IMPERVIOUS	1.00	3.28	3"	35,719	267,180
			STORMWATER STORAGE REQ.:	44,573	333,404
LOT 7		3.10			
PERVIOUS	0.30	0.92	3"	3,006	22,482
IMPERVIOUS	1.00	2.18	3"	23,740	177,577
			STORMWATER STORAGE REQ.:	26,746	200,059
LOT 8		3.06			
PERVIOUS	0.30	0.84	3"	2,744	20,527
IMPERVIOUS	1.00	2.22	3"	24,176	180,835
			STORMWATER STORAGE REQ.:	26,920	201,362
COMMON LOT 9[3]		24.01			
PERVIOUS AREA DIFFERENCE		5.06			
PERVIOUS	0.30	14.94	8"	130,157	973,576
IMPERVIOUS	1.00	4.01	8"	116,450	871,049
			STORMWATER STORAGE PROVIDED:	308,627	2,308,530
			TOTAL STORMWATER STORAGE REQ.:	709,934	5,310,309

1. DEVELOPMENT LOTS 1 THROUGH 8 SHALL BE FORMALLY DESIGNED AT THE TIME INDIVIDUAL APPLICATIONS ARE SUBMITTED TO THE TOWN FOR COMMERCIAL SITE PLAN APPROVALS. SITE PLANS WILL MEET THE COMMERCIAL SITE PLAN STANDARDS OF THE TOWN OF SMITHTOWN, INCLUDING STORMWATER SYSTEMS DESIGNED TO STORE THE VOLUME OF A 3-INCH RAIN EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY THE TOWN ENGINEERING DEPARTMENT.
2. DRAINAGE DESIGN FOR COMMON LOT 9 – WHICH INCLUDES PRIVATE ROADWAY, PONDS, DRAINAGE RESERVE AREAS, AREAS TO REMAIN NATURAL – HAVE BEEN DESIGNED TO STORE THE VOLUME OF AN 8-INCH RAINFALL EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY §248-39.B.2 OF THE TOWN CODE, AND AS CONFIRMED BY THE TOWN ENGINEERING DEPARTMENT.
3. STORMWATER STORAGE PROVIDED FOR THE COMMON LOT 9 IS BASED ON THE TRIBUTARY AREA AS SHOWN ON DRAWINGS C-1 TO C-4 OF THE PRELIMINARY ENGINEERING PLANS. THERE ARE PORTIONS OF THE COMMON LOT THAT ARE TO REMAIN NATURAL, UNDISTURBED, OR ARE OTHERWISE NOT CAPTURED BY THE PROPOSED STORMWATER MANAGEMENT SYSTEM DUE TO EXISTING DRAINAGE PATTERNS. A CALCULATED RAINFALL RUNOFF VOLUME IS NOT PROVIDED FOR THOSE PORTIONS OF THE COMMON LOT SINCE THEY ARE PART OF THE PROPOSED STORMWATER SYSTEM AND THERE IS NO CHANGE FROM EXISTING CONDITIONS.



ALTERNATIVE PLAN NO. 5

- 382,500 S.F. GENERAL LIGHT INDUSTRIAL
- NOTE: THIS ALTERNATIVE IS NOT BEING PROPOSED, AND DOES NOT NECESSARILY REQUIRE A SUBDIVISION

GYRODYNE, LLC
1 FLOWERFIELD
ST. JAMES, TOWN OF
SMITHTOWN, SUFFOLK
COUNTY, NEW YORK

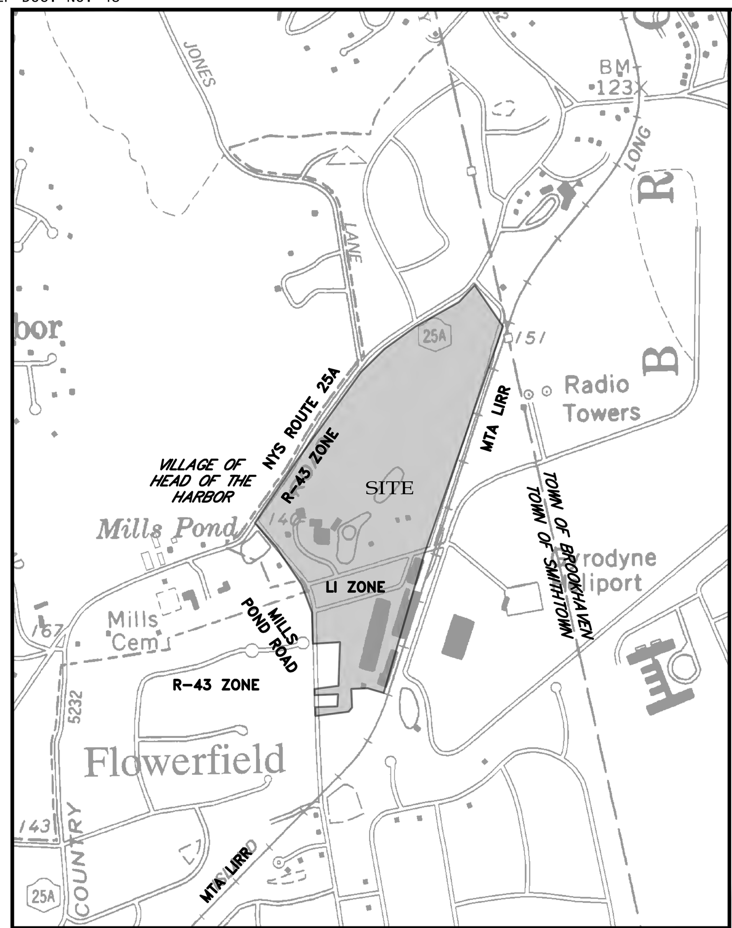
CAMERON ENGINEERING & ASSOCIATES, LLP

JERRY P. LaRUE
LICENSED LAND SURVEYOR

NOVEMBER 2019

Figure 19-5: Alternative Plan 5

GRAPHIC SCALE
(IN FEET)
HORIZ. 1 inch = 100 ft.



KEY LOCATION MAP
(SCALE 1"=600'±)

EXISTING AND PROPOSED DEVELOPMENT DATA

LOT NUMBER	LOT SIZE (ACRES)	LAND USE	BUILDING SIZE/YIELD	
1	12.75	EXISTING MIXED-USE BUILDINGS	132,719	S.F.
2	12.94	EXISTING CATERING HALL	34,685	S.F.
3	7.45	PROPOSED COMMON AREA	NA	
4	41.84	CONCEPTUAL RECREATIONAL AREA	NA	
TOTAL	74.98			

LANDSCAPE COVERAGE DATA

LOT NUMBER	LANDSCAPE AREA (ACRES)	LOT AREA (ACRES)	PERCENTAGE OF LANDSCAPED AREAS
1	3.38	12.75	27%
2	6.36	12.94	49%
3	0.84	7.45	11%
4	26.15	41.84	63%
TOTAL	36.73	74.98	49%

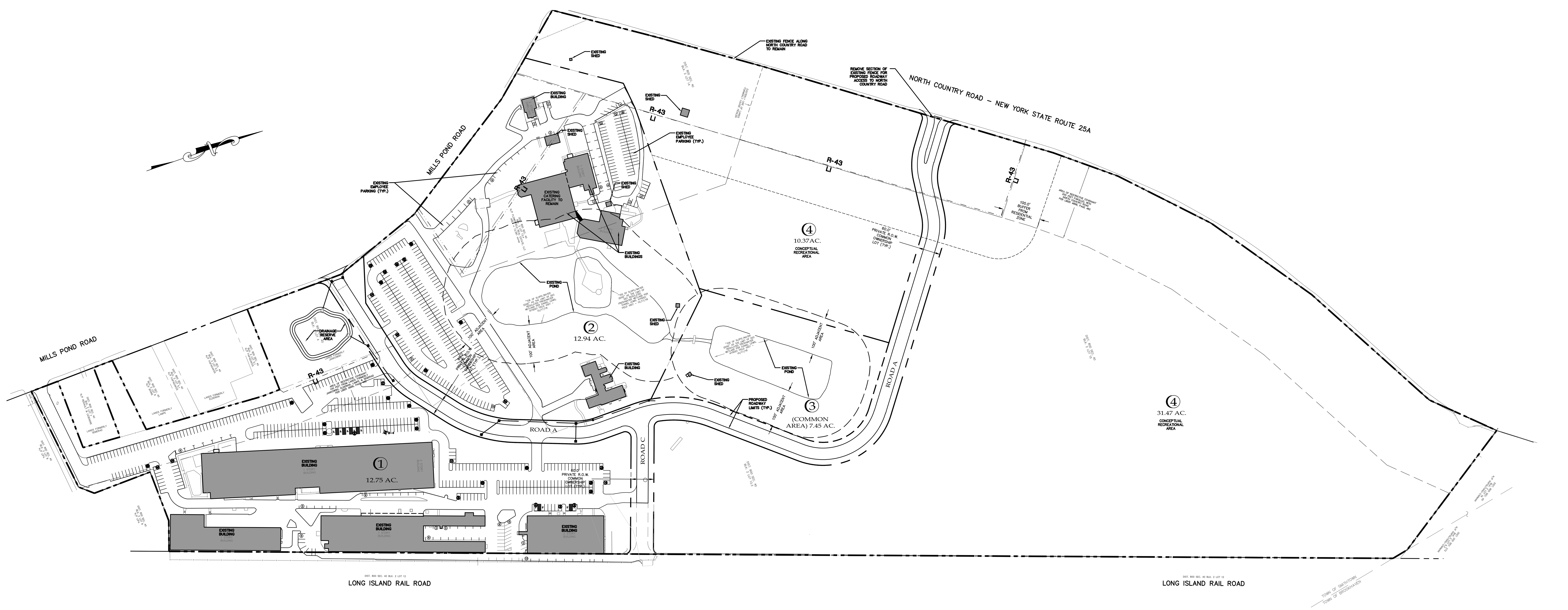
COMPARISON TO BASE PLAN

ENVIRONMENTAL RESOURCE	BASE PLAN/PROPOSED ACTION	ALTERNATIVE 6
GEOLOGY	NO IMPACTS	SAME AS BASE PLAN
SOILS	NO IMPACTS	SAME AS BASE PLAN
TOPOGRAPHY (GRADING AND EXCAVATION AREA FROM BUILDING-PARKING FOOTPRINT)	137,350 S.F. NEW BUILDING FOOTPRINT INCLUDING NEW ON-SITE STP	LESS THAN BASE PLAN: MINIMAL NEW BUILDING FOOTPRINT AND ±420,000 S.F. SMALLER PARKING AREA NEEDED
VEGETATION AND WILDLIFE	HABITATS CONVERT TO HARDSCAPE OR SUCCESSIONAL FORESTS	SIMILAR TO BASE PLAN AND THE ADDITIONAL OPEN SPACE WOULD TRANSITION TO SUCCESSIONAL FOREST
WASTEWATER TREATMENT	ON-SITE 100 MGD STP	NO STP – NOTABLY LESS BENEFIT COMPARED TO THE BASE PLAN
TRAFFIC GENERATION	324 TO 538 TRIPS INCLUDING INTERNAL TRIPS	FEWER THAN PROPOSED ACTION
OFF-SITE TRAFFIC MITIGATION	MITIGATION ADDRESSES OFF-SITE IMPACTS & EXISTING CONCERNS AT 2 LOCATIONS	LESS MITIGATION THAN THE BASE PLAN
PARKING	1,466 MORE SPACES REQUIRED SUFFICIENT ON-SITE PARKING INCLUDING SHARED & LAND-BANKED PARKING	±260 MORE PARKING SPACES REQUIRED ±82% FEWER THAN BASE PLAN
COMMUNITY SERVICES	NO NEW SCHOOL CHILDREN; ADDED POLICE-FIRE-EMS AND UTILITY SERVICE NEEDS	NO NEW SCHOOL CHILDREN, LIKE BASE PLAN; LESS DEMAND ON SERVICES THAN BASE PLAN
TAXES AND ECONOMIC IMPACTS	1,507 CONSTRUCTION JOBS; 1,078 POST-CONSTRUCTION JOBS; TAX POSITIVE TO SCHOOL DISTRICT, TOWN, COUNTY	NOTABLY SMALLER THAN BASE PLAN: FEW CONSTRUCTION JOBS AND FEW TO ZERO POST-CONSTRUCTION JOBS; TAX NEGATIVE FROM ADDED MUNICIPAL COSTS AND REMOVING LAND FROM THE TAX ROLL
OPEN SPACE	±36.5 ACRES: 48.7% OF THE SITE	±36.7 ACRES: 49.1% OF THE SITE
AIR QUALITY	MINIMAL IMPACTS, ADDRESSED BY SWPPP AND STANDARD EROSION & SEDIMENT CONTROL	SAME AS BASE PLAN
NOISE	NO SIGNIFICANT LONG-TERM IMPACTS	SAME AS BASE PLAN
VISUAL IMPACTS	ENHANCED SCREENING, 3-STORY BUILDING HEIGHTS, LENGTHY SETBACKS AVOID VISUAL IMPACTS; 396,150 S.F. NEW BUILDING AREA INCLUDING NEW ON-SITE STP	SMALLER THAN PROPOSED ACTION: LESS NEW BUILDING AREA AND GREATER SETBACKS
HISTORIC AND CULTURAL RESOURCES	NO IMPACTS	SAME AS BASE PLAN
WATER AND IRRIGATION	98,534 gpd	25,834 gpd
WASTEWATER	87,534 gpd	18,834 gpd
NITROGEN LOAD	32.4 lbs of N./YEAR/ACRE	33.4 lbs of N./YEAR/ACRE

DRAINAGE CALCULATIONS

DESCRIPTION	C	A (ACRE)	i (IN/HR)	V=CxixA (CF)	V=CxixA (GALLONS)
LOT 1		12.75			
PERVIOUS	0.30	3.38	3"	11,042	82,598
IMPERVIOUS	1.00	9.37	3"	102,039	763,254
			STORMWATER STORAGE REQ.:	113,082	845,852
LOT 2		12.94			
PERVIOUS	0.30	6.36	3"	20,778	155,420
IMPERVIOUS	1.00	6.58	3"	71,656	535,988
			STORMWATER STORAGE REQ.:	92,434	691,409
LOT 3		7.45			
PERVIOUS	0.30	0.84	3"	2,744	20,527
IMPERVIOUS	1.00	6.61	3"	71,983	538,432
			STORMWATER STORAGE REQ.:	74,727	558,959
LOT 4		41.84			
PERVIOUS	0.30	26.15	8"	227,819	1,704,085
IMPERVIOUS	1.00	15.69	8"	455,638	3,408,169
			STORMWATER STORAGE REQ.:	683,456	5,112,254
			TOTAL STORMWATER STORAGE REQ.:	963,700	7,208,473

1. DEVELOPMENT LOTS 1 THROUGH 3 SHALL BE FORMALLY DESIGNED AT THE TIME INDIVIDUAL APPLICATIONS ARE SUBMITTED TO THE TOWN FOR COMMERCIAL SITE PLAN APPROVALS. SITE PLANS WILL MEET THE COMMERCIAL SITE PLAN STANDARDS OF THE TOWN OF SMITHTOWN, INCLUDING STORMWATER SYSTEMS DESIGNED TO STORE THE VOLUME OF A 3-INCH RAIN EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY THE TOWN ENGINEERING DEPARTMENT.
2. DRAINAGE DESIGN FOR LOT 4 – WHICH INCLUDES PRIVATE ROADWAY, PONDS, DRAINAGE RESERVE AREAS, AREAS TO REMAIN NATURAL – HAVE BEEN DESIGNED TO STORE THE VOLUME OF AN 8-INCH RAINFALL EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY §248-39.B.2 OF THE TOWN CODE, AND AS CONFIRMED BY THE TOWN ENGINEERING DEPARTMENT.



ALTERNATIVE PLAN NO. 6

- PUBLIC ENTITY ACQUIRES AND SUBDIVIDES VACANT AREAS FOR PUBLIC (RECREATIONAL?) USE
- NOTE: THIS ALTERNATIVE IS NOT BEING PROPOSED

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COUNTY, NEW YORK

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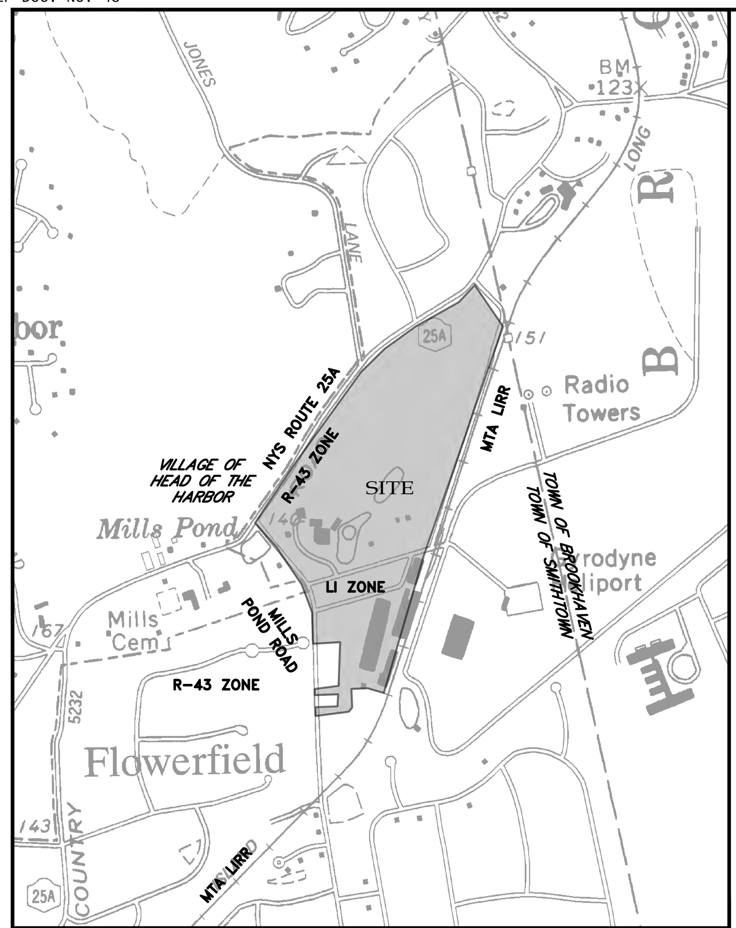
Livonia, NY 14487
Phone/Fax – (877) 779-3722

NOVEMBER 2019

Figure 19-6: Alternative Plan 6

GRAPHIC SCALE
(IN FEET)
HORIZ. 1 inch = 100 ft.



KEY LOCATION MAP
(SCALE 1"=600'±)

EXISTING AND PROPOSED DEVELOPMENT DATA

LOT NUMBER	LOT SIZE (ACRES)	LAND USE	BUILDING SIZE/YIELD	
1	12.75	EXISTING MIXED-USE BUILDINGS	132,719	S.F.
2	12.94	EXISTING CATERING HALL	34,685	S.F.
3	2.15	PROPOSED ADDITIONAL PARKING	NA	
4	5.61	PROPOSED HOTEL WITH RESTAURANT	99,700	S.F.
			125	ROOMS
5	6.17	PROPOSED MEDICAL OR R&D OFFICE	53,000	S.F.
6	6.04	PROPOSED MEDICAL OR R&D OFFICE	75,000	S.F.
7	5.47	PROPOSED ASSISTED LIVING	147,950	S.F.
			240	UNITS
8	23.85	PROPOSED COMMON AREA AND STP	7,950	S.F.
TOTAL	74.98			

LANDSCAPE COVERAGE DATA

LOT NUMBER	LANDSCAPE AREA (ACRES)	LOT AREA (ACRES)	PERCENTAGE OF LANDSCAPED AREAS
1	3.38	12.75	27%
2	6.36	12.94	49%
3	0.84	2.15	39%
4	3.07	6.03	51%
5	2.56	4.95	52%
6	1.37	5.99	23%
7	1.62	3.10	52%
8	20.00	24.01	83%
TOTAL	39.20	71.92	55%

COMPARISON TO BASE PLAN

ENVIRONMENTAL RESOURCE	BASE PLAN/PROPOSED ACTION	ALTERNATIVE 7
GEOLOGY	NO IMPACTS	SAME AS BASE PLAN
SOILS	NO IMPACTS	SAME AS BASE PLAN
TOPOGRAPHY (GRADING AND EXCAVATION AREA FROM BUILDING-PARKING FOOTPRINT)	137,350 S.F. NEW BUILDING FOOTPRINT INCLUDING NEW ON-SITE STP	SLIGHTLY LESS THAN BASE PLAN: 133,183 S.F. NEW BUILDING FOOTPRINT ±19,950 S.F. SMALLER PARKING AREA NEEDED
VEGETATION AND WILDLIFE	HABITATS CONVERT TO HARDSCAPE OR SUCCESSIONAL FORESTS	SIMILAR TO BASE PLAN AND THE ADDITIONAL OPEN SPACE WOULD TRANSITION TO SUCCESSIONAL FOREST
WASTEWATER TREATMENT	ON-SITE 100 MGD STP	SAME AS BASE PLAN
TRAFFIC GENERATION	324 TO 538 TRIPS INCLUDING INTERNAL TRIPS	SIMILAR TO PROPOSED ACTION: 310 TO 517 TRIPS INCLUDING INTERNAL TRIPS
OFF-SITE TRAFFIC MITIGATION	MITIGATION ADDRESSES OFF-SITE IMPACTS	SAME MITIGATION AS BASE PLAN
PARKING	1,466 MORE SPACES REQUIRED SUFFICIENT ON-SITE PARKING INCLUDING SHARED & LAND-BANKED PARKING	1,409 MORE SPACES REQUIRED SIMILAR TO BASE PLAN: SUFFICIENT PARKING INCLUDING SHARED & LAND-BANKED PARKING
COMMUNITY SERVICES	NO NEW SCHOOL CHILDREN; ADDED POLICE-FIRE-EMS AND UTILITY SERVICES	SAME AS BASE PLAN
TAXES AND ECONOMIC IMPACTS	1,507 CONSTRUCTION JOBS; 1,078 OPERATING JOBS; TAX POSITIVE TO ALL ENTITIES	SIMILAR TO BASE PLAN: 1,507 CONSTRUCTION JOBS; 1,077 OPERATING JOBS; TAX POSITIVE TO ALL ENTITIES
OPEN SPACE	±36.5 ACRES: 48.7% OF THE SITE	±20.0 ACRES: 26.3% OF THE SITE
AIR QUALITY	MINIMAL IMPACTS, ADDRESSED BY SWPPP AND STANDARD EROSION & SEDIMENT CONTROL	SAME AS PROPOSED ACTION
NOISE	NO SIGNIFICANT LONG-TERM IMPACTS	SAME AS PROPOSED ACTION
VISUAL IMPACTS	ENHANCED SCREENING, 3-STORY BUILDING HEIGHTS, LENGTHY SETBACKS AVOID VISUAL IMPACTS; 396,150 S.F. NEW BUILDING AREA INCLUDING NEW ON-SITE STP	SAME AS OR SIMILAR TO PROPOSED ACTION; 386,431 S.F. NEW BUILDING AREA
HISTORIC AND CULTURAL RESOURCES	NO IMPACTS	SAME AS PROPOSED ACTION
WATER AND IRRIGATION	98,534 gpd	96,610 gpd
WASTEWATER	87,534 gpd	85,610 gpd
NITROGEN LOAD	32.4 lbs of N./YEAR/ACRE	32.3 lbs of N./YEAR/ACRE

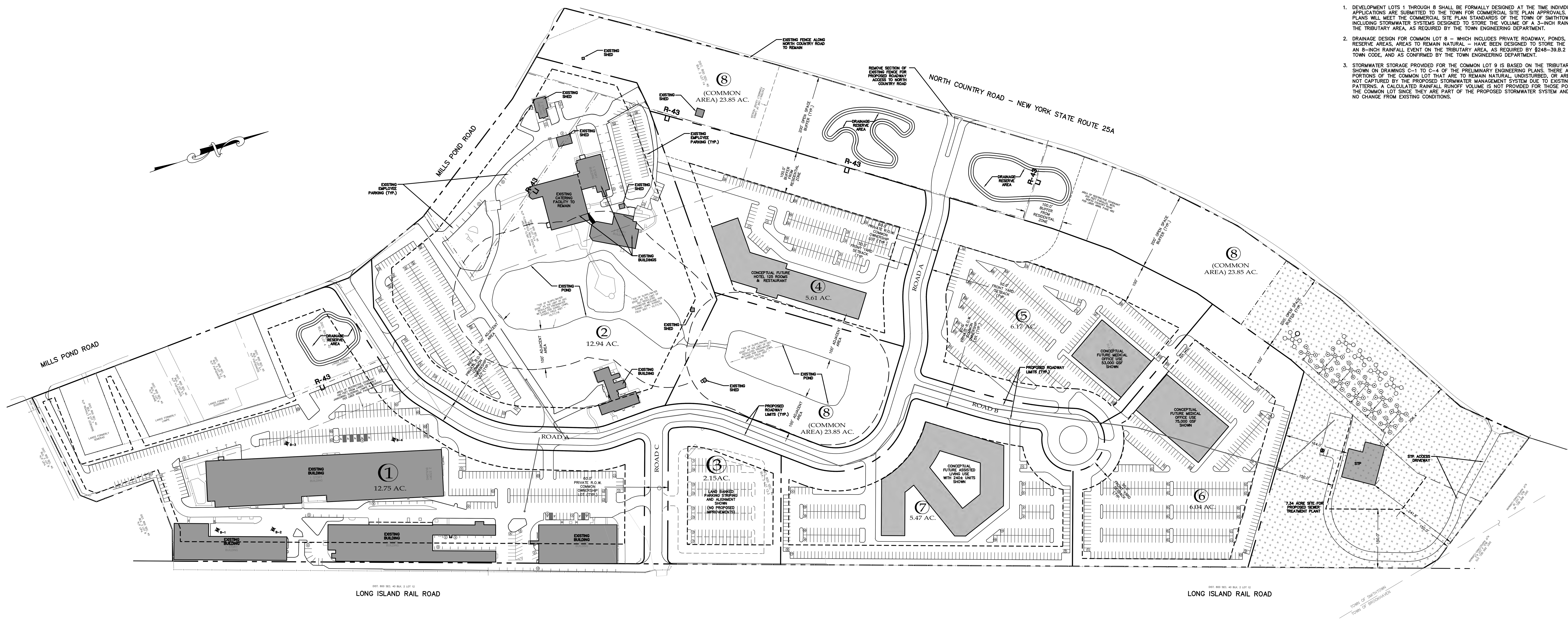
DRAINAGE CALCULATIONS

DESCRIPTION	C	A (ACRE)	i (IN/HR)	V=CxixA (CF)	V=CxixA (GALLONS)
LOT 1		12.75			
PERVIOUS	0.30	3.38	3"	11,042	82,598
IMPERVIOUS	1.00	9.37	3"	102,039	763,254
			STORMWATER STORAGE REQ.:	113,082	845,852
LOT 2		12.94			
PERVIOUS	0.30	6.36	3"	20,778	155,420
IMPERVIOUS	1.00	6.58	3"	71,656	535,988
			STORMWATER STORAGE REQ.:	92,434	691,409
LOT 3		2.15			
PERVIOUS	0.30	0.84	3"	2,744	20,527
IMPERVIOUS	1.00	1.31	3"	14,266	106,709
			STORMWATER STORAGE REQ.:	17,010	127,236
LOT 4		6.03			
PERVIOUS	0.30	3.07	3"	10,030	75,022
IMPERVIOUS	1.00	2.96	3"	32,234	241,113
			STORMWATER STORAGE REQ.:	42,264	316,135
LOT 5		4.95			
PERVIOUS	0.30	2.56	3"	8,364	62,559
IMPERVIOUS	1.00	2.39	3"	26,027	194,683
			STORMWATER STORAGE REQ.:	34,391	257,242
LOT 6		5.99			
PERVIOUS	0.30	1.37	3"	4,476	33,479
IMPERVIOUS	1.00	4.62	3"	50,312	376,332
			STORMWATER STORAGE REQ.:	54,788	409,811
LOT 7		3.10			
PERVIOUS	0.30	1.62	3"	5,293	39,588
IMPERVIOUS	1.00	1.48	3"	16,117	120,557
			STORMWATER STORAGE REQ.:	21,410	160,145
COMMON LOT 8[3]		24.01			
PERVIOUS AREA DIFFERENCE		5.06			
PERVIOUS	0.30	14.94	8"	130,157	973,576
IMPERVIOUS	1.00	4.01	8"	116,450	871,049
			STORMWATER STORAGE PROVIDED:	308,627	2,308,530
			TOTAL STORMWATER STORAGE REQ.:	684,005	5,116,360

1. DEVELOPMENT LOTS 1 THROUGH 8 SHALL BE FORMALLY DESIGNED AT THE TIME INDIVIDUAL APPLICATIONS ARE SUBMITTED TO THE TOWN FOR COMMERCIAL SITE PLAN APPROVALS. SITE PLANS WILL MEET THE COMMERCIAL SITE PLAN STANDARDS OF THE TOWN OF SMITHTOWN, INCLUDING STORMWATER SYSTEMS DESIGNED TO STORE THE VOLUME OF A 3-INCH RAIN EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY THE TOWN ENGINEERING DEPARTMENT.

2. DRAINAGE DESIGN FOR COMMON LOT 8 – WHICH INCLUDES PRIVATE ROADWAY, PONDS, DRAINAGE RESERVE AREAS, AREAS TO REMAIN NATURAL – HAVE BEEN DESIGNED TO STORE THE VOLUME OF AN 8-INCH RAINFALL EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY §248-39.B.2 OF THE TOWN CODE, AND AS CONFIRMED BY THE TOWN ENGINEERING DEPARTMENT.

3. STORMWATER STORAGE PROVIDED FOR THE COMMON LOT 9 IS BASED ON THE TRIBUTARY AREA AS SHOWN ON DRAWINGS C-1 TO C-4 OF THE PRELIMINARY ENGINEERING PLANS. THERE ARE PORTIONS OF THE COMMON LOT THAT ARE TO REMAIN NATURAL, UNDISTURBED, OR ARE OTHERWISE NOT CAPTURED BY THE PROPOSED STORMWATER MANAGEMENT SYSTEM DUE TO EXISTING DRAINAGE PATTERNS. A CALCULATED RAINFALL RUNOFF VOLUME IS NOT PROVIDED FOR THOSE PORTIONS OF THE COMMON LOT SINCE THEY ARE PART OF THE PROPOSED STORMWATER SYSTEM AND THERE IS NO CHANGE FROM EXISTING CONDITIONS.



ALTERNATIVE PLAN NO. 7 (COMPLIES WITH UN-ADOPTED DRAFT CPU)

- 125-ROOM HOTEL (25 FEWER ROOMS THAN THE PROPOSED ACTION-BASE PLAN)
- 128,000 S.F. MEDICAL OFFICE (2,000 S.F. SMALLER THAN THE PROPOSED ACTION-BASE PLAN)
- 240 ASSISTED LIVING UNITS (20 MORE THAN THE PROPOSED ACTION-BASE PLAN)

GYRODYNE, LLC
1 FLOWERFIELD
ST. JAMES, TOWN OF
SMITHTOWN, SUFFOLK
COUNTY, NEW YORK

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1411 Broadway, Suite 610, New York, NY 10018 T: (212) 324-4000
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Livonia, NY 14487
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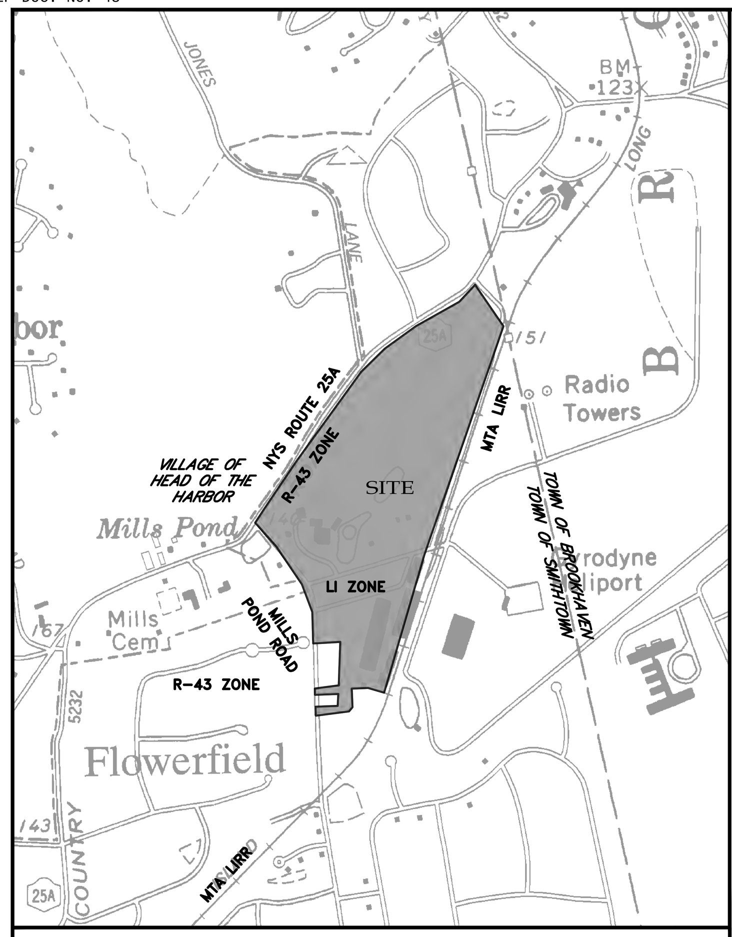
NOVEMBER 2019

Figure 19-7: Alternative Plan 7

GRAPHIC SCALE
(IN FEET)
HORIZ. 1 inch = 100 ft.



KEY LOCATION MAP
(SCALE 1"=600'±)

EXISTING AND PROPOSED DEVELOPMENT DATA

LOT NUMBER	LOT SIZE (ACRES)	LAND USE	BUILDING SIZE/YIELD	
1	12.75	EXISTING MIXED-USE BUILDINGS	132,719	S.F.
2	12.94	EXISTING CATERING HALL	34,685	S.F.
3	2.15	PROPOSED ADDITIONAL PARKING	NA	
4	6.03	PROPOSED HOTEL WITH RESTAURANT	110,200	S.F.
			150	ROOMS
5	4.95	PROPOSED MEDICAL OR R&D OFFICE	55,350	S.F.
6	5.99	PROPOSED MEDICAL OR R&D OFFICE	74,650	S.F.
7	3.10	PROPOSED ASSISTED LIVING	74,000	S.F.
			110	UNITS
8	3.06	PROPOSED ASSISTED LIVING	74,000	S.F.
			110	UNITS
9	24.01	PROPOSED COMMON AREA AND STP	7,950	S.F.
TOTAL	74.98			

LANDSCAPE COVERAGE DATA

LOT NUMBER	LANDSCAPE AREA (ACRES)	LOT AREA (ACRES)	PERCENTAGE OF LANDSCAPED AREAS
1	3.38	12.75	27%
2	6.36	12.94	49%
3	0.84	2.15	39%
4	2.74	6.03	45%
5	1.37	4.95	28%
6	1.50	5.99	25%
7	1.41	3.10	45%
8	1.37	3.06	45%
9	20.00	24.01	83%
TOTAL	38.97	74.98	52%

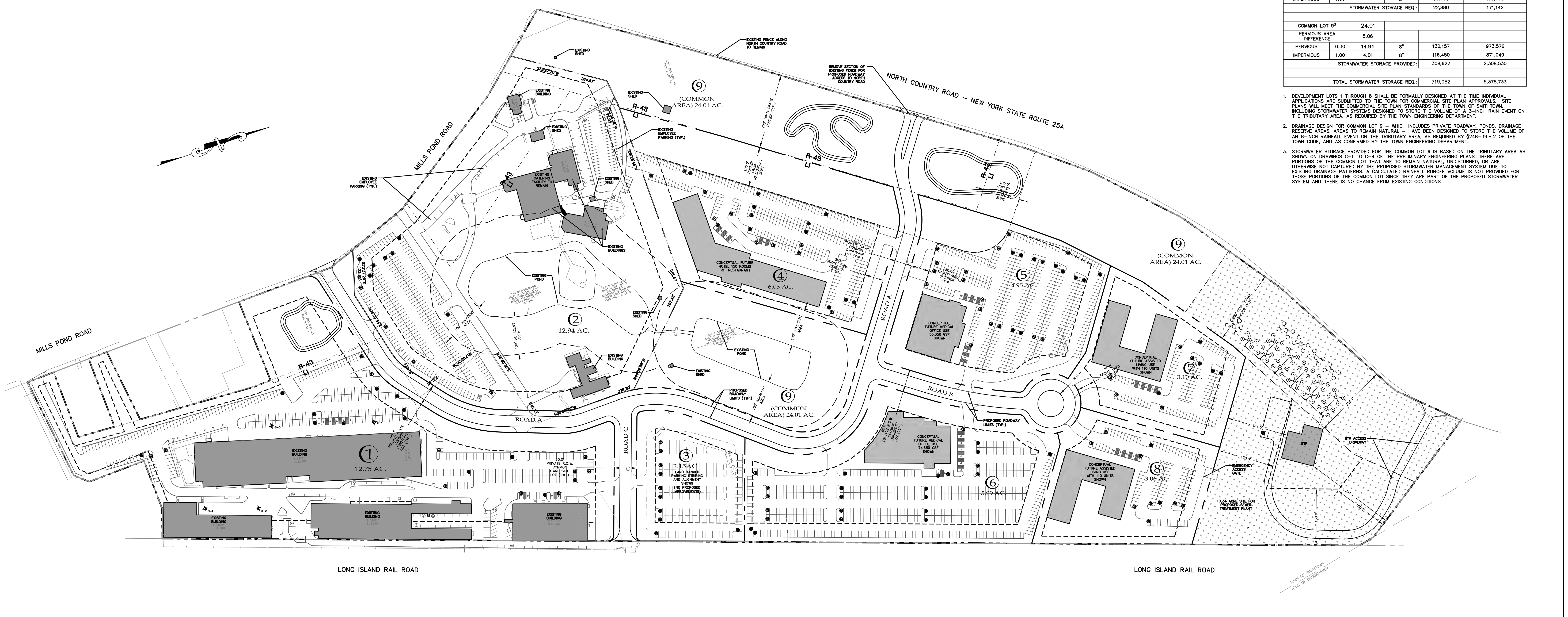
COMPARISON TO BASE PLAN

ENVIRONMENTAL RESOURCE	BASE PLAN/PROPOSED ACTION	ALTERNATIVE 8
GEOLOGY	NO IMPACTS	NO IMPACTS
SOILS	NO IMPACTS	NO IMPACTS
TOPOGRAPHY (GRADING AND EXCAVATION AREA FROM BUILDING–PARKING FOOTPRINT)	137,350 S.F. NEW BUILDING FOOTPRINT INCLUDING NEW ON–SITE STP	SAME AS BASE PLAN: 137,350 S.F. NEW BUILDING FOOTPRINT
VEGETATION AND WILDLIFE	HABITATS CONVERT TO HARDSCAPE OR SUCCESSIONAL FORESTS	HABITATS CONVERT TO HARDSCAPE OR SUCCESSIONAL FORESTS
WASTEWATER TREATMENT	ON–SITE 100 MGD STP	ON–SITE 100 MGD STP
TRAFFIC GENERATION	324 TO 538 TRIPS INCLUDING INTERNAL TRIPS	324 TO 538 TRIPS INCLUDING INTERNAL TRIPS
OFF–SITE TRAFFIC MITIGATION	MITIGATION ADDRESSES OFF–SITE IMPACTS & EXISTING CONCERNS AT 2 LOCATIONS	MITIGATION ADDRESSES OFF–SITE IMPACTS & EXISTING CONCERNS AT 2 LOCATIONS
PARKING	1,466 MORE SPACES REQUIRED SUFFICIENT ON–SITE PARKING INCLUDING SHARED & LAND–BANKED PARKING	1,466 MORE SPACES REQUIRED SUFFICIENT ON–SITE PARKING INCLUDING SHARED & LAND–BANKED PARKING
COMMUNITY SERVICES	NO NEW SCHOOL CHILDREN; ADDED POLICE–FIRE–EMS AND UTILITY SERVICE NEEDS	NO NEW SCHOOL CHILDREN; ADDED POLICE–FIRE–EMS AND UTILITY SERVICE NEEDS
TAXES AND ECONOMIC IMPACTS	1,507 CONSTRUCTION JOBS; 1,078 POST–CONSTRUCTION JOBS; TAX POSITIVE TO SCHOOL DISTRICT, TOWN, COUNTY	1,507 CONSTRUCTION JOBS; 1,078 POST–CONSTRUCTION JOBS; TAX POSITIVE TO SCHOOL DISTRICT, TOWN, COUNTY
OPEN SPACE	±36.5 ACRES: 48.7% OF THE SITE	±36.5 ACRES: 48.7% OF THE SITE
AIR QUALITY	MINIMAL IMPACTS, ADDRESSED BY SWPPP AND STANDARD EROSION & SEDIMENT CONTROL	MINIMAL IMPACTS, ADDRESSED BY SWPPP AND STANDARD EROSION & SEDIMENT CONTROL
NOISE	NO SIGNIFICANT LONG–TERM IMPACTS	NO SIGNIFICANT LONG–TERM IMPACTS
VISUAL IMPACTS	ENHANCED SCREENING, 3–STORY BUILDING HEIGHTS, LENGTHY SETBACKS AVOID VISUAL IMPACTS; 396,150 S.F. NEW BUILDING AREA INCLUDING NEW ON–SITE STP	ENHANCED SCREENING, 3–STORY BUILDING HEIGHTS, LENGTHY SETBACKS AVOID VISUAL IMPACTS; 387,466 S.F. NEW BUILDING AREA
HISTORIC AND CULTURAL RESOURCES	NO IMPACTS	NO IMPACTS
WATER AND IRRIGATION	98,534 gpd	98,534 gpd
WASTEWATER	87,534 gpd	87,534 gpd
NITROGEN LOAD	32.4 lbs of N./YEAR/ACRE	32.4 lbs of N./YEAR/ACRE

DRAINAGE CALCULATIONS

DESCRIPTION	C	A (ACRE)	i (IN/HR)	V=CxixA (CF)	V=CxixA (GALLONS)
LOT 1		12.75			
PERVIOUS	0.30	3.38	3"	11,042	82,598
IMPERVIOUS	1.00	9.37	3"	102,039	763,254
			STORMWATER STORAGE REQ.:	113,082	845,852
LOT 2		12.94			
PERVIOUS	0.30	6.36	3"	20,778	155,420
IMPERVIOUS	1.00	6.58	3"	71,656	535,988
			STORMWATER STORAGE REQ.:	92,434	691,409
LOT 3		2.15			
PERVIOUS	0.30	0.84	3"	2,744	20,527
IMPERVIOUS	1.00	1.31	3"	14,266	106,709
			STORMWATER STORAGE REQ.:	17,010	127,236
LOT 4		6.03			
PERVIOUS	0.30	2.74	3"	8,952	66,958
IMPERVIOUS	1.00	3.29	3"	35,828	267,994
			STORMWATER STORAGE REQ.:	44,780	334,952
LOT 5		4.95			
PERVIOUS	0.30	1.37	3"	4,476	33,479
IMPERVIOUS	1.00	3.58	3"	38,986	291,617
			STORMWATER STORAGE REQ.:	43,462	325,096
LOT 6		5.99			
PERVIOUS	0.30	1.50	3"	4,901	36,656
IMPERVIOUS	1.00	4.49	3"	48,896	365,743
			STORMWATER STORAGE REQ.:	53,797	402,399
LOT 7		3.10			
PERVIOUS	0.30	1.41	3"	4,606	34,456
IMPERVIOUS	1.00	1.69	3"	18,404	137,663
			STORMWATER STORAGE REQ.:	23,011	172,119
LOT 8		3.06			
PERVIOUS	0.30	1.37	3"	4,476	33,479
IMPERVIOUS	1.00	1.69	3"	18,404	137,663
			STORMWATER STORAGE REQ.:	22,880	171,142
COMMON LOT 9[3]		24.01			
PERVIOUS AREA DIFFERENCE		5.06			
PERVIOUS	0.30	14.94	8"	130,157	973,576
IMPERVIOUS	1.00	4.01	8"	116,450	871,049
			STORMWATER STORAGE PROVIDED:	308,627	2,308,530
			TOTAL STORMWATER STORAGE REQ.:	719,082	5,378,733

1. DEVELOPMENT LOTS 1 THROUGH 8 SHALL BE FORMALLY DESIGNED AT THE TIME INDIVIDUAL APPLICATIONS ARE SUBMITTED TO THE TOWN FOR COMMERCIAL SITE PLAN APPROVALS. SITE PLANS WILL MEET THE COMMERCIAL SITE PLAN STANDARDS OF THE TOWN OF SMITHTOWN, INCLUDING STORMWATER SYSTEMS DESIGNED TO STORE THE VOLUME OF A 3–INCH RAIN EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY THE TOWN ENGINEERING DEPARTMENT.
2. DRAINAGE DESIGN FOR COMMON LOT 9 – WHICH INCLUDES PRIVATE ROADWAY, PONDS, DRAINAGE RESERVE AREAS, AREAS TO REMAIN NATURAL – HAVE BEEN DESIGNED TO STORE THE VOLUME OF AN 8–INCH RAINFALL EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY §248–39.B.2 OF THE TOWN CODE, AND AS CONFIRMED BY THE TOWN ENGINEERING DEPARTMENT.
3. STORMWATER STORAGE PROVIDED FOR THE COMMON LOT 9 IS BASED ON THE TRIBUTARY AREA AS SHOWN ON DRAWINGS C–1 TO C–4 OF THE PRELIMINARY ENGINEERING PLANS. THERE ARE PORTIONS OF THE COMMON LOT THAT ARE TO REMAIN NATURAL, UNDISTURBED, OR ARE OTHERWISE NOT CAPTURED BY THE PROPOSED STORMWATER MANAGEMENT SYSTEM DUE TO EXISTING DRAINAGE PATTERNS. A CALCULATED RAINFALL RUNOFF VOLUME IS NOT PROVIDED FOR THOSE PORTIONS OF THE COMMON LOT SINCE THEY ARE PART OF THE PROPOSED STORMWATER SYSTEM AND THERE IS NO CHANGE FROM EXISTING CONDITIONS.



ALTERNATIVE PLAN NO. 8 (RAILROAD CROSSING RE-OPENED)

- 150-ROOM HOTEL (SAME AS BASE PLAN)
- 130,000 S.F. MEDICAL (OR GENERAL OR R&D) OFFICE (SAME AS BASE PLAN)
- 220 ASSISTED LIVING UNITS (SAME AS BASE PLAN)

GYRODYNE, LLC
1 FLOWERFIELD
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SMITHTOWN, SUFFOLK
COUNTY, NEW YORK

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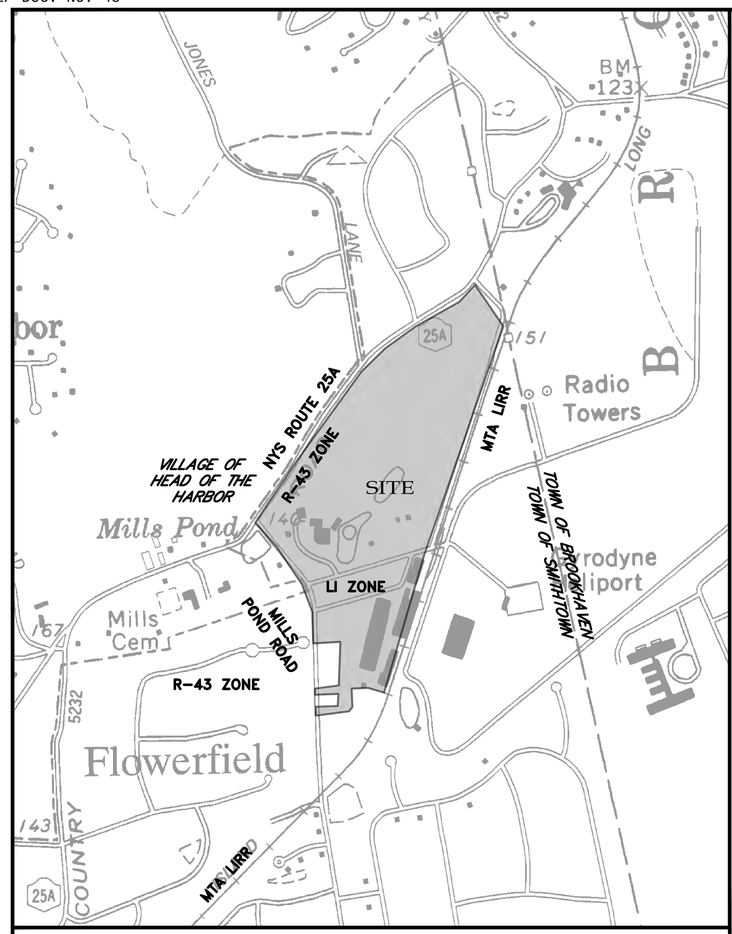
NOVEMBER 2019

Figure 19-8: Alternative Plan 8

GRAPHIC SCALE
100 0 50 100 200
(IN FEET)
HORIZ. 1 inch = 100 ft.



KEY LOCATION MAP
(SCALE 1"=600'±)

EXISTING AND PROPOSED DEVELOPMENT DATA

LOT NUMBER	LOT SIZE (ACRES)	LAND USE	BUILDING SIZE/YIELD	
1	12.75	EXISTING MIXED-USE BUILDINGS	132,719	S.F.
2	12.94	EXISTING CATERING HALL	34,685	S.F.
3	2.15	PROPOSED ADDITIONAL PARKING	NA	
4	6.03	PROPOSED HOTEL WITH RESTAURANT	110,200	S.F.
			150	ROOMS
5	4.95	PROPOSED MEDICAL OR R&D OFFICE	55,350	S.F.
6	5.99	PROPOSED MEDICAL OR R&D OFFICE	74,650	S.F.
7	3.10	PROPOSED ASSISTED LIVING	74,000	S.F.
			110	UNITS
8	3.06	PROPOSED ASSISTED LIVING	74,000	S.F.
			110	UNITS
9	24.01	PROPOSED COMMON AREA AND STP	15,900	S.F.
TOTAL	74.98			

LANDSCAPE COVERAGE DATA

LOT NUMBER	LANDSCAPE AREA (ACRES)	LOT AREA (ACRES)	PERCENTAGE OF LANDSCAPED AREAS
1	3.38	12.75	27%
2	6.36	12.94	49%
3	0.84	2.15	39%
4	2.74	6.03	45%
5	1.37	4.95	28%
6	1.50	5.99	25%
7	1.41	3.10	45%
8	1.37	3.06	45%
9	20.00	24.01	83%
TOTAL	38.97	74.98	52%

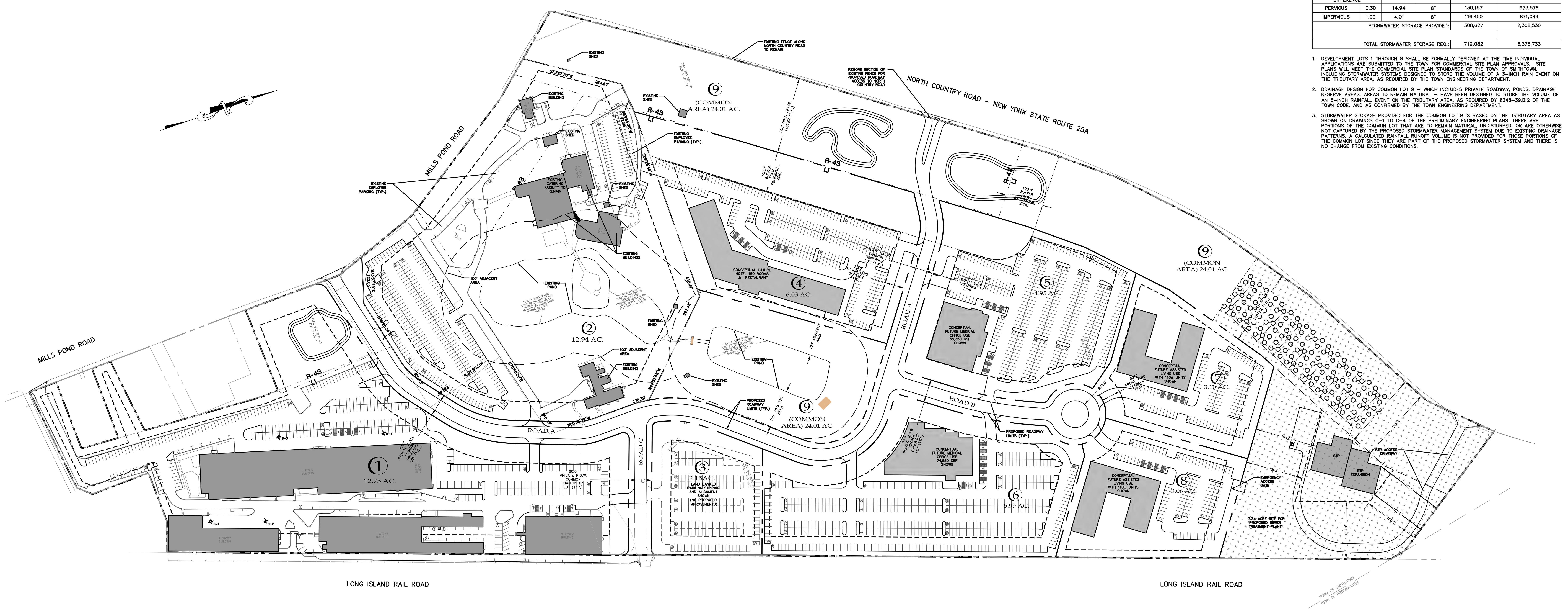
COMPARISON TO BASE PLAN

ENVIRONMENTAL RESOURCE	BASE PLAN/PROPOSED ACTION	ALTERNATE 9
GEOLOGY	NO IMPACTS	NO IMPACTS
SOILS	NO IMPACTS	NO IMPACTS
TOPOGRAPHY (GRADING AND EXCAVATION AREA FROM BUILDING-PARKING FOOTPRINT)	137,350 S.F. NEW BUILDING FOOTPRINT INCLUDING NEW ON-SITE STP	SLIGHTLY MORE THAN BASE PLAN: 145,300 S.F. NEW BUILDING FOOTPRINT (ONLY CHANGE IS THE LARGER STP)
VEGETATION AND WILDLIFE	HABITATS CONVERT TO HARDSCAPE OR SUCCESSIONAL FORESTS	HABITATS CONVERT TO HARDSCAPE OR SUCCESSIONAL FORESTS
WASTEWATER TREATMENT	ON-SITE 100 MGD STP	ON-SITE 171 MGD STP
TRAFFIC GENERATION	324 TO 538 TRIPS INCLUDING INTERNAL TRIPS	324 TO 538 TRIPS INCLUDING INTERNAL TRIPS
OFF-SITE TRAFFIC MITIGATION	MITIGATION ADDRESSES OFF-SITE IMPACTS & EXISTING CONCERNS AT 2 LOCATIONS	MITIGATION ADDRESSES OFF-SITE IMPACTS & EXISTING CONCERNS AT 2 LOCATIONS
PARKING	1,466 MORE SPACES REQUIRED SUFFICIENT ON-SITE PARKING INCLUDING SHARED & LAND-BANKED PARKING	1,466 MORE SPACES REQUIRED SUFFICIENT ON-SITE PARKING INCLUDING SHARED & LAND-BANKED PARKING
COMMUNITY SERVICES	NO NEW SCHOOL CHILDREN; ADDED POLICE-FIRE-EMS AND UTILITY SERVICE NEEDS	NO NEW SCHOOL CHILDREN; ADDED POLICE-FIRE-EMS AND UTILITY SERVICE NEEDS
TAXES AND ECONOMIC IMPACTS	1,507 CONSTRUCTION JOBS; 1,078 POST-CONSTRUCTION JOBS; TAX POSITIVE TO SCHOOL DISTRICT, TOWN, COUNTY	1,507 CONSTRUCTION JOBS; 1,078 POST-CONSTRUCTION JOBS; TAX POSITIVE TO SCHOOL DISTRICT, TOWN, COUNTY
OPEN SPACE	±36.5 ACRES: 48.7% OF THE SITE	±35.0 ACRES: 46.7% OF THE SITE
AIR QUALITY	MINIMAL IMPACTS, ADDRESSED BY SWPPP AND STANDARD EROSION & SEDIMENT CONTROL	MINIMAL IMPACTS, ADDRESSED BY SWPPP AND STANDARD EROSION & SEDIMENT CONTROL
NOISE	NO SIGNIFICANT LONG-TERM IMPACTS	NO SIGNIFICANT LONG-TERM IMPACTS
VISUAL IMPACTS	ENHANCED SCREENING, 3-STORY BUILDING HEIGHTS, LENGTHY SETBACKS AVOID VISUAL IMPACTS; 396,150 S.F. NEW BUILDING AREA INCLUDING NEW ON-SITE STP	ENHANCED SCREENING, 3-STORY BUILDING HEIGHTS, LENGTHY SETBACKS AVOID VISUAL IMPACTS; 393,966 S.F. NEW BUILDING AREA
HISTORIC AND CULTURAL RESOURCES	NO IMPACTS	NO IMPACTS
WATER AND IRRIGATION	98,534 gpd	98,534 gpd
WASTEWATER	87,534 gpd	157,134 gpd
NITROGEN LOAD	32.4 lbs of N./YEAR/ACRE	48.8 lbs of N./YEAR/ACRE

DRAINAGE CALCULATIONS

DESCRIPTION	C	A (ACRE)	i (IN/HR)	V=CxixA (CF)	V=CxixA (GALLONS)
LOT 1		12.75			
PERVIOUS	0.30	3.38	3"	11,042	82,598
IMPERVIOUS	1.00	9.37	3"	102,039	763,254
STORMWATER STORAGE REQ.:				113,082	845,852
LOT 2		12.94			
PERVIOUS	0.30	6.36	3"	20,778	155,420
IMPERVIOUS	1.00	6.58	3"	71,656	535,988
STORMWATER STORAGE REQ.:				92,434	691,409
LOT 3		2.15			
PERVIOUS	0.30	0.84	3"	2,744	20,527
IMPERVIOUS	1.00	1.31	3"	14,266	106,709
STORMWATER STORAGE REQ.:				17,010	127,236
LOT 4		6.03			
PERVIOUS	0.30	2.74	3"	8,952	66,958
IMPERVIOUS	1.00	3.29	3"	35,828	267,994
STORMWATER STORAGE REQ.:				44,780	334,952
LOT 5		4.95			
PERVIOUS	0.30	1.37	3"	4,476	33,479
IMPERVIOUS	1.00	3.58	3"	38,986	291,617
STORMWATER STORAGE REQ.:				43,462	325,096
LOT 6		5.99			
PERVIOUS	0.30	1.50	3"	4,901	36,656
IMPERVIOUS	1.00	4.49	3"	48,896	365,743
STORMWATER STORAGE REQ.:				53,797	402,399
LOT 7		3.10			
PERVIOUS	0.30	1.41	3"	4,606	34,456
IMPERVIOUS	1.00	1.69	3"	18,404	137,663
STORMWATER STORAGE REQ.:				23,011	172,119
LOT 8		3.06			
PERVIOUS	0.30	1.37	3"	4,476	33,479
IMPERVIOUS	1.00	1.69	3"	18,404	137,663
STORMWATER STORAGE REQ.:				22,880	171,142
COMMON LOT 9[3]		24.01			
PERVIOUS AREA DIFFERENCE		5.06			
PERVIOUS	0.30	14.94	8"	130,157	973,576
IMPERVIOUS	1.00	4.01	8"	116,450	871,049
STORMWATER STORAGE PROVIDED:				308,627	2,308,530
TOTAL STORMWATER STORAGE REQ.:				719,082	5,378,733

1. DEVELOPMENT LOTS 1 THROUGH 8 SHALL BE FORMALLY DESIGNED AT THE TIME INDIVIDUAL APPLICATIONS ARE SUBMITTED TO THE TOWN FOR COMMERCIAL SITE PLAN APPROVALS. SITE PLANS WILL MEET THE COMMERCIAL SITE PLAN STANDARDS OF THE TOWN OF SMITHTOWN, INCLUDING STORMWATER SYSTEMS DESIGNED TO STORE THE VOLUME OF A 3-INCH RAIN EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY THE TOWN ENGINEERING DEPARTMENT.
2. DRAINAGE DESIGN FOR COMMON LOT 9 – WHICH INCLUDES PRIVATE ROADWAY, PONDS, DRAINAGE RESERVE AREAS, AREAS TO REMAIN NATURAL – HAVE BEEN DESIGNED TO STORE THE VOLUME OF AN 8-INCH RAINFALL EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY §248-39.B.2 OF THE TOWN CODE, AND AS CONFIRMED BY THE TOWN ENGINEERING DEPARTMENT.
3. STORMWATER STORAGE PROVIDED FOR THE COMMON LOT 9 IS BASED ON THE TRIBUTARY AREA AS SHOWN ON DRAWINGS C-1 TO C-4 OF THE PRELIMINARY ENGINEERING PLANS. THERE ARE PORTIONS OF THE COMMON LOT THAT ARE TO REMAIN NATURAL, UNDISTURBED, OR ARE OTHERWISE NOT CAPTURED BY THE PROPOSED STORMWATER MANAGEMENT SYSTEM DUE TO EXISTING DRAINAGE PATTERNS. A CALCULATED RAINFALL RUNOFF VOLUME IS NOT PROVIDED FOR THOSE PORTIONS OF THE COMMON LOT SINCE THEY ARE PART OF THE PROPOSED STORMWATER SYSTEM AND THERE IS NO CHANGE FROM EXISTING CONDITIONS.



ALTERNATIVE PLAN NO. 9 (EXPANDED STP)

- 150-ROOM HOTEL (SAME AS BASE PLAN)
- 130,000 S.F. MEDICAL OFFICE (SAME AS BASE PLAN)
- 220 ASSISTED LIVING UNITS (SAME AS BASE PLAN)

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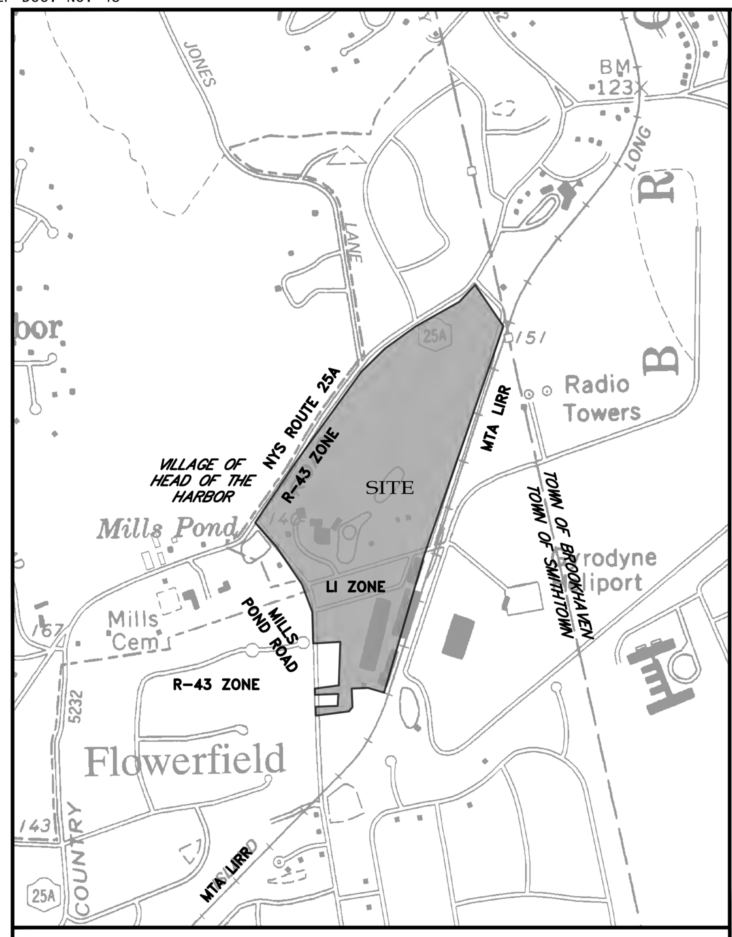
NOVEMBER 2019

Figure 19-9: Alternative Plan 9

GRAPHIC SCALE
(IN FEET)
HORIZ. 1 inch = 100 ft.



KEY LOCATION MAP
(SCALE 1"=600'±)

EXISTING AND PROPOSED DEVELOPMENT DATA

LOT NUMBER	LOT SIZE (ACRES)	LAND USE	BUILDING SIZE/YIELD	
1	10.62	3 OF 4 EXISTING MIXED-USE BUILDINGS (4TH BUILDING RE-DESIGNATED TO LOT 3)	112,878	S.F.
2	12.56	EXISTING CATERING HALL	34,685	S.F.
3	14.42	CORPORATE TECHNOLOGY / OFFICE	183,150	S.F.
4	9.90	PROPOSED ASSISTED LIVING	179,500	S.F.
			280	UNITS
5	4.87	PROPOSED HOTEL INCLUDES 6,000 S.F. SPA	89,300	S.F.
			115	ROOMS
6	22.61	PROPOSED COMMON AREA AND STP	7,950	S.F.
TOTAL	74.98			

LANDSCAPE COVERAGE DATA

LOT NUMBER	LANDSCAPE AREA (ACRES)	LOT AREA (ACRES)	PERCENTAGE OF LANDSCAPED AREAS
1	2.72	10.6	26%
2	5.91	12.6	47%
3	2.22	14.4	15%
4	9.80	9.9	99%
5	2.31	4.9	47%
6	18.60	22.6	82%
TOTAL	41.56	74.98	55%

COMPARISON TO BASE PLAN

ENVIRONMENTAL RESOURCE	BASE PLAN/PROPOSED ACTION	ALTERNATIVE 10
GEOLOGY	NO IMPACTS	SAME AS BASE PLAN
SOILS	NO IMPACTS	SAME AS BASE PLAN
TOPOGRAPHY (GRADING AND EXCAVATION AREA FROM BUILDING-PARKING FOOTPRINT)	137,350 S.F. NEW BUILDING FOOTPRINT INCLUDING NEW ON-SITE STP	SLIGHTLY MORE THAN BASE PLAN: 138,759 S.F. NEW BUILDING FOOTPRINT ±48,650 S.F. LARGER PARKING AREA AND 26,700 S.F. SMALLER ROADWAY AREA NEEDED
VEGETATION AND WILDLIFE	HABITATS CONVERT TO HARDSCAPE OR SUCCESSIONAL FORESTS	SIMILAR TO BASE PLAN AND THE ADDITIONAL OPEN SPACE WOULD TRANSITION TO SUCCESSIONAL FOREST
WASTEWATER TREATMENT	ON-SITE 100 MGD STP	SAME AS BASE PLAN
TRAFFIC GENERATION	324 TO 538 TRIPS INCLUDING INTERNAL TRIPS	LESS THAN BASE PLAN: 314 TO 344 TRIPS INCLUDING INTERNAL TRIPS
OFF-SITE TRAFFIC MITIGATION	MITIGATION ADDRESSES OFF-SITE IMPACTS & EXISTING CONCERNS AT 2 LOCATIONS	SAME OR LESS MITIGATION AS BASE PLAN
PARKING	1,466 MORE SPACES REQUIRED SUFFICIENT ON-SITE PARKING INCLUDING SHARED & LAND-BANKED PARKING	1,605 MORE SPACES REQUIRED 5% MORE THAN BASE PLAN; SUFFICIENT PARKING INCLUDING SHARED PARKING
COMMUNITY SERVICES	NO NEW SCHOOL CHILDREN; ADDED POLICE-FIRE-EMS AND UTILITY SERVICE NEEDS	SAME AS BASE PLAN
TAXES AND ECONOMIC IMPACTS	1,507 CONSTRUCTION JOBS; 1,078 POST-CONSTRUCTION JOBS; TAX POSITIVE TO SCHOOL DISTRICT, TOWN, COUNTY	SIMILAR TO BASE PLAN: 1,518 CONSTRUCTION JOBS; 1,085 POST-CONSTRUCTION JOBS; TAX POSITIVE TO SCHOOL DISTRICT, TOWN, COUNTY
OPEN SPACE	±36.5 ACRES: 48.7% OF THE SITE	±18.6 ACRES: 25.5% OF THE SITE
AIR QUALITY	MINIMAL IMPACTS, ADDRESSED BY SWPPP AND STANDARD EROSION & SEDIMENT CONTROL	SAME AS BASE PLAN
NOISE	NO SIGNIFICANT LONG-TERM IMPACTS	SAME AS BASE PLAN
VISUAL IMPACTS	ENHANCED SCREENING, 3-STORY BUILDING HEIGHTS, LENGTHY SETBACKS AVOID VISUAL IMPACTS; 396,150 S.F. NEW BUILDING AREA INCLUDING NEW ON-SITE STP	SAME AS OR SIMILAR TO BASE PLAN: ENHANCED SCREENING, 3-STORY BUILDING HEIGHTS, LENGTHY SETBACKS AVOID VISUAL IMPACTS; 442,177 S.F. NEW BUILDING AREA
HISTORIC AND CULTURAL RESOURCES	NO IMPACTS	SAME AS BASE PLAN
WATER AND IRRIGATION	98,534 gpd	87,110 gpd
WASTEWATER	87,534 gpd	75,110 gpd
NITROGEN LOAD	32.4 lbs of N./YEAR/ACRE	33.0 lbs of N./YEAR/ACRE

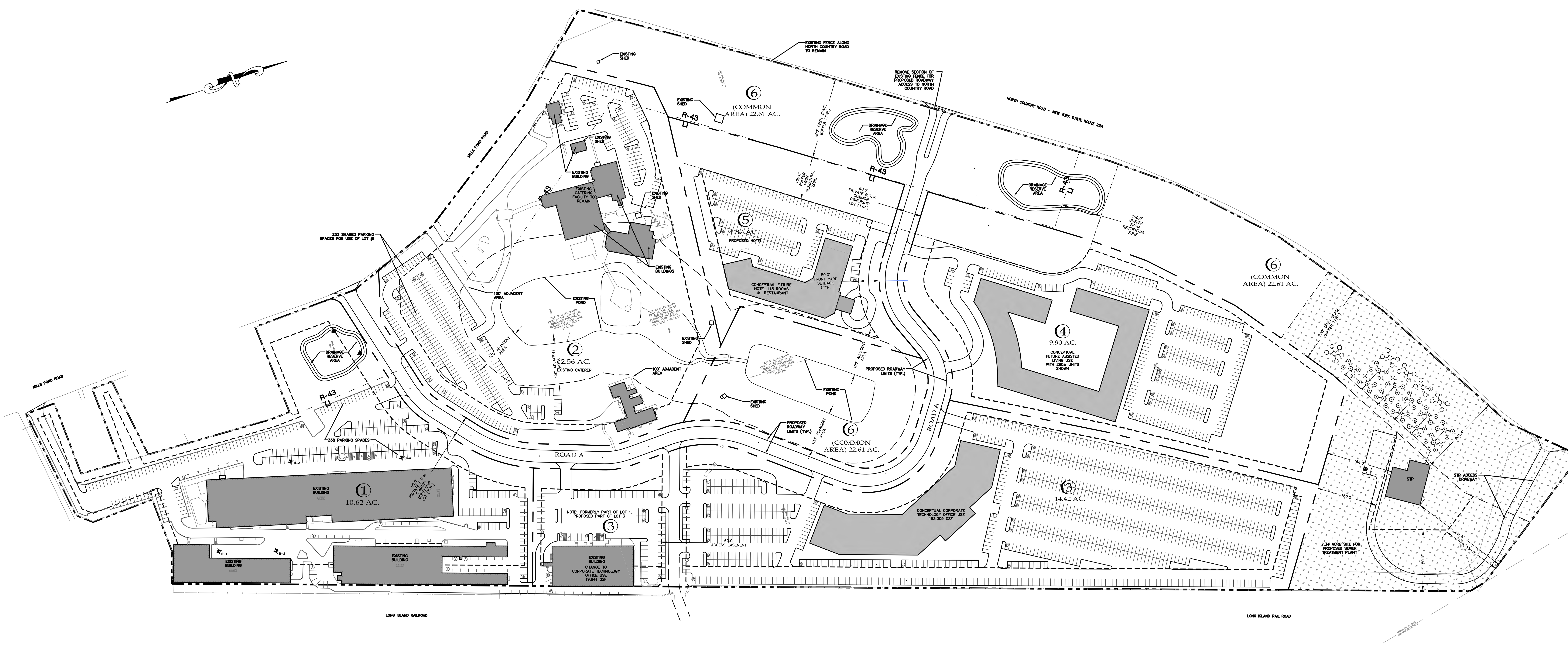
DRAINAGE CALCULATIONS

DESCRIPTION	C	A (ACRE)	i (IN/HR)	V=CxixA (CF)	V=CxixA (GALLONS)
LOT 1		10.62			
PERVIOUS	0.30	2.72	3"	8,886	66,469
IMPERVIOUS	1.00	7.90	3"	86,031	643,512
		STORMWATER STORAGE REQ.:		94,917	709,981
LOT 2		12.56			
PERVIOUS	0.30	5.91	3"	19,308	144,424
IMPERVIOUS	1.00	6.65	3"	72,419	541,690
		STORMWATER STORAGE REQ.:		91,726	686,114
LOT 3		14.42			
PERVIOUS	0.30	2.22	3"	7,253	54,250
IMPERVIOUS	1.00	12.20	3"	132,858	993,778
		STORMWATER STORAGE REQ.:		140,111	1,048,028
LOT 4		9.90			
PERVIOUS	0.30	9.80	3"	32,017	239,484
IMPERVIOUS	1.00	0.10	3"	1,089	8,146
		STORMWATER STORAGE REQ.:		33,106	247,630
LOT 5		4.87			
PERVIOUS	0.30	2.31	3"	7,547	56,450
IMPERVIOUS	1.00	2.56	3"	27,878	208,530
		STORMWATER STORAGE REQ.:		35,425	264,980
COMMON LOT 6[3]		22.61			
PERVIOUS AREA DIFFERENCE		3.66			
PERVIOUS	0.30	14.94	8"	130,157	973,576
IMPERVIOUS	1.00	4.01	8"	116,450	871,049
		STORMWATER STORAGE PROVIDED:		308,627	2,308,530
		TOTAL STORMWATER STORAGE REQ.:		703,912	5,265,263

1. DEVELOPMENT LOTS 1 THROUGH 5 SHALL BE FORMALLY DESIGNED AT THE TIME INDIVIDUAL APPLICATIONS ARE SUBMITTED TO THE TOWN FOR COMMERCIAL SITE PLAN APPROVALS. SITE PLANS WILL MEET THE COMMERCIAL SITE PLAN STANDARDS OF THE TOWN OF SMITHTOWN, INCLUDING STORMWATER SYSTEMS DESIGNED TO STORE THE VOLUME OF A 3-INCH RAIN EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY THE TOWN ENGINEERING DEPARTMENT.

2. DRAINAGE DESIGN FOR COMMON LOT 6 – WHICH INCLUDES PRIVATE ROADWAY, PONDS, DRAINAGE RESERVE AREAS, AREAS TO REMAIN NATURAL – HAVE BEEN DESIGNED TO STORE THE VOLUME OF AN 8-INCH RAINFALL EVENT ON THE TRIBUTARY AREA, AS REQUIRED BY §248-39.B.2 OF THE TOWN CODE, AND AS CONFIRMED BY THE TOWN ENGINEERING DEPARTMENT.

3. STORMWATER STORAGE PROVIDED FOR THE COMMON LOT 6 IS BASED ON THE TRIBUTARY AREA AS SHOWN ON DRAWINGS C-1 TO C-4 OF THE PRELIMINARY ENGINEERING PLANS. THERE ARE PORTIONS OF THE COMMON LOT THAT ARE TO REMAIN NATURAL, UNDISTURBED, OR ARE OTHERWISE NOT CAPTURED BY THE PROPOSED STORMWATER MANAGEMENT SYSTEM DUE TO EXISTING DRAINAGE PATTERNS. A CALCULATED RAINFALL RUNOFF VOLUME IS NOT PROVIDED FOR THOSE PORTIONS OF THE COMMON LOT SINCE THEY ARE PART OF THE PROPOSED STORMWATER SYSTEM AND THERE IS NO CHANGE FROM EXISTING CONDITIONS.



ALTERNATIVE PLAN NO. 10

- 115-ROOM HOTEL (35 FEWER THAN BASE PLAN)
- 183,150 S.F. CORPORATE TECHNOLOGY OFFICE
- 280 ASSISTED LIVING UNITS (60 MORE THAN BASE PLAN)

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NOVEMBER 2019

GRAPHIC SCALE
(IN FEET)
HORIZ. 1 inch = 100 ft.

Figure 19-10: Alternative Plan 10

20. List of Acronyms and Abbreviations

All terms in this section are in alphabetical order with respect to the abbreviation, so the elongated names may not be in alphabetical order.

Most of the terms in this section are defined in the Glossary beginning on page 21-1.

AADT	Average Annual Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ACM	Asbestos Containing Material
ASLA	American Society of Landscape Architects
AST	Above-ground Storage Tank
BA	Board of Appeals
BMPs	Best Management Practices
BZO	Building Zone Ordinance
CAA	Clean Air Act
CE	Cameron Engineering
CEA	Cameron Engineering & Associates
CEWIT	Center of Excellence in Wireless and Information Technology
CMU	Concrete Masonry Unit
CO	Carbon monoxide
CPU	Comprehensive Plan Update
CREC	Controlled Recognized Environmental Condition (Controlled REC)
dB/dBA	Decibel
DEIS	Draft Environmental Impact Statement
DRA	Drainage Reserve Area
EAF	Environmental Assessment Form
EIS	Environmental Impact Statement
EMS	Emergency Medical Services
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
ESC	Erosion and Sediment Control
ETC	Estimated Time of Completion
FAR	Floor Area Ratio
GIS	Geographic Information Systems
gpd	Gallons per day
GVWR	Gross Vehicle Weight Rating
HCM	Highway Capacity Manual

(Continued on next page)

HDM	Highway Design Manual
HREC	Historical Recognized Environmental Condition/Historical REC (see below)
HVAC	Heating, Ventilation, and Air Conditioning
IDC	Innovation and Discovery Center
IMPLAN	IMpact analysis for PLANning
IPM	Integrated Pest Management
ITE	Institute of Transportation Engineers
lb	Pound
LBP	Lead Based Paint
LED	Light Emitting Diode
LEED	Leadership in Energy and Environmental Design
LI	Light Industrial (refers to Town zoning)
LID	Low Impact Development
LIRR	Long Island Rail Road
LISS	Long Island Sound Study
LMP	Limited Maintenance Plan
LOS	Level of Service
LTANKS	Leaking Storage Tank Incident Reports
MGD	Million gallons per day
mg/L	Milligrams per liter
mph	Miles per hour
MPT	Maintenance and Protection of Traffic (see also, WZTC)
MSL	Mean Sea Level
MUTCD	Manual on Uniform Traffic Control Devices
N/A	Not applicable
NAAQS	National Ambient Air Quality Standards
NAVD88	North American Vertical Datum of 1988
NFA	No Further Action
NGVD29	National Geodetic Vertical Datum of 1929
NWI	National Wetlands Inventory
NYCRR	New York Codes, Rules, and Regulations
NYMA	New York Metropolitan Area
NYNHP	New York Natural Heritage Program
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health

(Continued on next page)

NYSDOT	New York State Department of Transportation
NYSPILLS	New York Spills List
NYSM	New York State Marker
O3	Ozone
OPRHP	Office of Parks, Recreation, and Historic Preservation
OWTS	On-site Wastewater Treatment Systems
P	Precipitation / Permitted
PHF	Peak Hour Factor
PM	Particulate Matter
ppm	Parts per million
PRD	Planned Residential District
PWGC	P.W. Grosser Consulting, Inc.
R	Recharge
RCRA	Resource Conservation and Recovery Act
R&D	Research and Development
REC	Recognized Environmental Condition
RIMS II	Regional Input-Output Modeling System
RSCO	Recommended Soil Cleanup Objectives
SBR	Sequencing Batch Reactors
SBU	Stony Brook University
SBUMC	Stony Brook University Medical Center / Stony Brook Medical
SCDHS	Suffolk County Department of Health Services
SCDPW	Suffolk County Department of Public Works
SCT	Suffolk County Transit
SCWA	Suffolk County Water Authority
SEQRA	State Environmental Quality Review Act
s.f.	Square feet
SGPA	Special Groundwater Protection Area
SIP	State Implementation Plan
SOP	Standard Operating Procedure
SPDES	State Pollutant Discharge Elimination System
SSAL	Soil Screening Action Level
SSLs	Soil Screening Levels
STP	Sewage Treatment Plant
STR	Smith Travel Reports
SVOC	Semi Volatile Organic Compound

(Continued on next page)

SWP	Subwatersheds Wastewater Management Plan
SWPPP	Stormwater Pollution Prevention Plan
TAGM	Technical and Administrative Guidance Memorandum
TMDL	Total Maximum Daily Load
TB	Town Board
TN	Total Nitrogen
UIC	Underground Injection Control
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
V/C	Volume to Capacity Ratio
VOC	Volatile Organic Compound
VPD	Vehicles per day
WZTC	Work Zone Traffic Control (see also, MPT)

21. Glossary

85th percentile: A value that is higher than 85% of the overall number. For example, the 85th percentile speed reflects the speed that is higher than 85% of the traffic at a certain location. The term "percentile" applies to any percentage, e.g. 90th percentile.

age-restricted housing: Housing for people above a specified age such that no school-age children, i.e., less than the age of eighteen (18), are present

ambient growth: The projected annual traffic increase associated with general population growth in the area, given as a percentage (e.g. 0.5% per year)

ambient air: surrounding air; outside air

Average annual daily traffic (AADT): The volume of traffic in both directions on a particular road that would be expected during an average day (24 continuous hours) during the year, in terms of "vehicles per day"

aquifer: A geologic formation (*formation defined on page 21-3*) containing water; an underground layer of water-bearing permeable rock or unconsolidated materials from which groundwater can be usefully extracted

as-of-right: The permission for an action by means of a legal entitlement, rather than through extenuating circumstances

available moisture capacity: The capacity of soils to hold water available for use by most plants

bedrock: The solid rock that underlies loose material, such as soil, sand, clay, or gravel

Best Management Practice (BMP): A measure recognized by the NYSDEC as a means of controlling/minimizing stormwater runoff or stormwater pollution

build-out: The development or expansion of a parcel of land according to its maximum allowable usage as defined by its zoning

Build scenario: The projected traffic conditions during the year when a project/subdivision is expected to be built and fully occupied/operational

clay: A fine-grained, firm earthy material

Clean Air Act (CAA): The federal law which requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (*NAAQS, defined on page 21-4*) for pollutants considered harmful to public health and the environment

conifer: Any of various mostly needle-leaved or scale-leaved, chiefly evergreen, cone-bearing gymnospermous (*defined on page 21-3*) trees or shrubs such as pines, spruces, and firs

Controlled Recognized Environmental Condition (CREC): An earlier documented release of pollutants that was addressed to the satisfaction of the applicable regulatory agency (e.g. the Suffolk County Department of Health Services), where the hazardous material was allowed to remain in place, subject to a required control. The menu of controls includes the construction of an impermeable cap above a contamination area, or the prohibition of drilling in and near contaminated soils (which precludes the installation of dry wells)

Cretaceous: The final period of the Mesozoic Era, approximately 135 to 65 million years ago

dB: Decibel; a logarithmic unit of measurement that expresses the magnitude of sound

dbh: a bird's measured diameter at breast height

de minimis: Insignificant, minor, or trivial

deciduous: A tree that sheds its leaves at a specific season or stage of growth

Draft Environmental Impact Statement (DEIS): The draft of an environmental analysis document ("impact statement") required under SEQRA (*defined on page 21-7*) for actions with the potential to have a significant adverse impact on the environment

drip irrigation: an irrigation method which minimizes the use of water and fertilizer by allowing water to drip slowly to the roots of plants

Drainage Reserve Area (DRA): An area of land set aside for drainage purposes

drywell: A subterranean chamber near a building, having stones or gravel inside and used to collect rainwater runoff from the roof

ecosystem: An ecological community together with its environment, functioning as a unit

effluent: Material discharged into the environment

elevation: The height of a specific location above a given reference level (e.g., mean sea level)

emergent plant: A plant growing in standing water with the terminal part (i.e., end of stem) above the water

endangered species: An organism that is in danger of extinction if its situation is not improved

Environmental Site Assessment (ESA): A site-specific investigation and evaluation of the presence of Recognized Environmental Conditions (RECs).

erosion: the carrying away or displacement of soil, sediment or other particles typically by the agents of wind and water

evapotranspiration: The release of water vapor from the earth's surface by evaporation and transpiration

Existing scenario: The observed conditions and counted traffic at the time the traffic study is prepared; when seasonal adjustment is used, the terms “Existing” and “Seasonally Adjusted Existing” are interchangeable because they refer to the same year

FAR (Floor Area Ratio): The ratio of a building’s total floor area to the total parcel/property area

floodplain: Any land area susceptible to being inundated by floodwaters from any source

formation: A series of rocks of a particular structure or shape *(a geology definition)*

glacial till: Glacial drift composed of an unconsolidated, heterogeneous mixture of clay, sand, pebbles, cobbles, and boulders

gneiss: A banded or foliated metamorphic rock, usually of the same composition as granite

green features: In this context, “green” denotes environmentally friendly features that achieve one or more of the following goals: lower energy demand, reduced stormwater runoff, or reduced use of new/virgin materials (e.g. through recycling)

gross metropolitan product: a measure of the fiscal value of all final goods and services produced within a metropolitan statistical area during a set period (e.g. a quarter, a year)

ground cover: A plant used for the purpose of growing over an area of ground to hide the ground or to protect it from erosion or drought

groundwater: Water stored beneath the ground surface, often between saturated soil and rock, in a sandy, geological formation known as the Aquifer System. Groundwater supplies wells and springs, and it originates as rain or snow that percolates through the soil and into the underground aquifers.

gymnospermous: A vascular plant whose seeds are not enclosed/protected in a capsule

herpetile: Generic term for reptiles and amphibians

Highway Capacity Manual (HCM): The federal document that dictates how traffic impacts and Level of Service are calculated

Historical Recognized Environmental Condition (HREC): An earlier documented release of pollutants that either was addressed to the satisfaction of the applicable regulatory agency (e.g. the Suffolk County Department of Health Services), or which meets unrestricted use criteria without any new required controls such as restrictions or limitations on property use and on-site activity

hydrophytic: The quality of certain plants for being tolerant to saturated soils

input-output model: A matrix representation of a national or regional economy to predict the effect of changes in one industry on others and by consumers, government, and foreign suppliers on the economy

Institute Of Transportation Engineers (ITE): Founded in 1930, the international association of over 15,000 transportation professionals, and the premier source for traffic engineering data, standards, recommended practices, and research

Integrated Pest Management (IPM): An effective and environmentally sensitive approach to pest management that relies on a combination of common-sense practices

interglacial: Occurring between glacial epochs

invasive: A non-indigenous species, i.e., one outside of its native habitat, that adversely affects the habitats it invades economically, environmentally, or ecologically

landbanked parking: Areas to be kept unpaved (possibly with grass or low-growing vegetation) for potential future use as paved parking, and possibly for temporary overflow during peak periods, to avoid paving spaces that would be unoccupied most of the time

Leadership in Energy and Environmental Design (LEED): A point system that identifies nationally-recognized environmentally conscious ("green") features in a building's location, orientation, mechanical systems, and site features

Level of Service (LOS): The measure of traffic delay measured in "seconds per vehicle" and graded from LOS A through LOS F. See Traffic Study Appendix A.

loam: Soil composed of a mixture of sand, clay, silt, and organic matter

Manual on Uniform Traffic Control Devices (MUTCD): The federal document that dictates the use of any traffic control device, including signals, signs, and pavement markings

mean sea level (MSL): The average height of the surface of the sea for all stages of the tide

mitigation: A required change e.g. traffic signal retiming or replacing wetlands, aimed at minimizing the differences between the "No Build" and "Build" scenarios

moraine: Glacially-formed accumulation of unconsolidated glacial debris (soil and rock) which can occur in currently glaciated and formerly glaciated regions

Maintenance and Protection of Traffic (MPT) (*also called Work Zone Traffic Control*): Construction phase activities that ensure traffic/pedestrian access is maintained around a work site, and that "protect" pass-by traffic, pedestrians, and construction workers/vehicles by separating the paths of travel from nearby work areas

National Ambient Air Quality Standards (NAAQS): Pollutant concentration thresholds for specific pollutants (e.g. carbon monoxide) established by the United States Environmental Protection Agency (USEPA). Attainment vs. non-attainment of the NAAQS corresponds to compliance with the Clean Air Act

National Wetlands Inventory (NWI): Hard copy and digital maps prepared by the U.S. Fish and Wildlife Service that depict the types, sizes, and locations of wetlands and deepwater habitats in the United States

New York Natural Heritage Program (NYNHP): The State entity charged with facilitating conservation of biodiversity by providing comprehensive information and scientific expertise on rare species and natural ecosystems

New York State Department of Environmental Conservation (NYSDEC): The State entity with primary jurisdiction over air quality, water quality, solid waste, and SEQR

New York State Department of Transportation (NYSDOT): The State entity with jurisdiction over all New York State roads, e.g. NYS Route 25A/North Country Road, and access thereto

No Build scenario: The projected conditions in the year when the project/subdivision is expected to be built, without the project/subdivision is not built

No Further Action: a determination that a brownfield site poses no unacceptable risks to human health or to the environment, following investigation and/or cleanup activity. A NFA decision indicates the state will not require additional remedial action beyond that already undertaken. An NFA decision may be conditioned on compliance with certain controls.

NYSPILLS: A NYSDEC database of past spills of contaminated materials that also indicates “closed” records once the spills in question have been cleaned to NYSDEC satisfaction

organic: Of, relating to, or derived from plants or animals

outwash plain: sandy area downstream from a moraine created by drift particles and meltwater from a glacier

overwinter: animal activity to relocate to warmer locales to better survive the winter

palustrine: an inland, non-tidal wetland that lacks flowing water and contains ocean-derived salts in concentrations of less than 0.5 parts per thousand

particulate matter: Material suspended in the air in the form of minute, solid particles when considered as an atmospheric pollutant

peak hour: The hour with the greatest volume of traffic in a set time period, such as weekday AM, weekday PM, or Saturday midday peak hour, defined as:

- Weekday A.M. Peak Hour: The busiest hour between 7:00 and 9:00 a.m.
- Weekday P.M. Peak Hour: The busiest hour between 4:00 and 6:00 p.m.
- Saturday Midday Peak Hour: The busiest hour between 11:00 a.m. and 2:00 p.m.

Peak Hour Factor (PHF): The ratio value between 0.25 and 1.00 that denotes whether peak hour traffic is consistent over the four 15-minute intervals that make up the peak hour; typical PHFs during weekday/Saturday peak hour periods are 0.92 or greater

- PHF of 0.25: completely inconsistent traffic flow with all traffic in 15 minutes

- PHF of 1.0: completely consistent traffic flow where each 15-minute period (¼ of the peak hour) has ¼ of the hourly traffic

peak hour period/peak period: The timeframes when traffic is counted for a traffic study, based on when proposed land uses would be busiest:

- Weekday A.M. Peak Period: 7:00 to 9:00 a.m. on a typical weekday
- Weekday P.M. Peak Period: 4:00 to 6:00 p.m. on a typical weekday
- Saturday Midday Peak Period: 11:00 a.m. to 2:00 p.m. on a typical Saturday

peak hour volume: The highest 60-minute, two-way traffic volume at a particular intersection during an overall morning, midday, or evening period

petroleum hydrocarbons: A large family of several hundred chemical compounds that, by definition, are found in crude oil and other sources such as natural gas, coal, and peat

Pleistocene: A geologic period, commonly termed the Ice Age, which began about 1.6 million years ago and ended about 11,500 years ago with the melting of the large continental glaciers, creating the modern climatic pattern

queue: A line of waiting people or vehicles

rare species: A native species of plant or animal which exists in low numbers or in isolated areas

Resource Conservation and Recovery Act (RCRA) area: An area subject to the cleanup and oversight of the USEPA associated with hazardous waste, non-hazardous waste, medical waste, and underground storage tanks

Regional Input-Output Modeling System (RIMS): A regional economic model developed by the Bureau of Economic Analysis as a tool to objectively assess the potential economic impacts of various projects

Recognized Environmental Condition (REC): The presence or likely presence of hazardous substances or petroleum products (such as indications of an oil spill or chemical spill), identified based on any of the following conditions:

- a documented release to the environment,
- conditions indicative of a release to the environment, or
- conditions that pose a material threat of a future release to the environment

Recommended Soil Cleanup Objective (RSCO): A contaminant-specific remedial action objective for soil based on a site's current, intended, or reasonably anticipated future use

Sangamon (Glaciation): A 3,000-to-4,000-year climate warming interval, beginning approximately 131,000 years ago, and occurring between the Illinoian Glaciation and Wisconsin Glaciation

scoping: The area covered by a given activity or subject

shared parking: Using parking spaces on one parcel to satisfy the parking needs on an adjacent parcel, typically associated with parcels that are busy at different times of the week, so the same parking space serves different uses at various times

soil phases: A subset of a soil series to distinguish between a wide range of certain features

soil series: A group of soils with similar composition, characteristics, and profiles through the soil strata

soil stoniness: A measure of the number, size, and spacing of rock fragments on the soil surface

State Implementation Plan (SIP): A plan required by the USEPA for all NAAQS non-attainment areas for each pollutant of concern, to establish and maintain air pollution reduction strategies, and with the goal of eventually achieving NAAQS attainment status. The NYSDEC prepares and submits SIPs for EPA review and approval.

strata (plural) or stratum (singular): A horizontal layer of sedimentary material (soil, rock) with consistent features throughout, that are different from the features of the layers directly above or below

Suffolk County Department of Health Services (SCDHS): The County entity charged with promoting wellness and protecting the public's health and environment; purview includes water resources, pollution control, sanitary/STP design, and wastewater management

schist: Any of various medium-grained to coarse-grained metamorphic rocks composed of laminated, often flaky, parallel layers of chiefly micaceous minerals

seasonal adjustment: The use of NYSDOT monthly traffic data to adjust observed / counted traffic from the month of the traffic count to a busier month of the year; when seasonal adjustment is used, the terms “Existing” and “Seasonally Adjusted Existing” are interchangeable because they refer to the same year

seasonally adjusted scenario: The traffic conditions projected for a busier month of the same year when traffic counts are obtained for a traffic study; equivalent to the term “Existing” with respect to a traffic impact study, because they refer to the same year

sedimentation: The act or process of depositing sediment

seepage: The slow movement of water through a soil

septic system: Passive sewage treatment system which uses gravity and anaerobic conditions to process the waste

Sequencing Batch Reactor (SBR): Processing tanks for the treatment of wastewater

sewage treatment plant (STP): The site of convergence and treatment for household, commercial, and industrial sewage via the sewerage system, treated to primary, secondary, or tertiary level before being discharged as effluent to receiving waters

State Environmental Quality Review Act (SEQRA): New York law that requires all government agencies to consider environmental impacts equally with social and economic factors during discretionary decision-making

Special Groundwater Protection Area (SGPA): A groundwater area in a federally designated sole-source aquifer that meets designated criteria for water supply potential, groundwater quality or pollution levels, the level of development above the area, and the area's effect on economic-social-ecological-recreational-aesthetic conditions

silt: A sedimentary material consisting of very fine particles intermediate in size between sand and clay

solid waste: In a municipal context, waste that comprises garbage and refuse generated by households and commercial establishments, typically collected by local government bodies

State Pollutant Discharge Elimination System (SPDES): A NYSDEC program designed to eliminate water pollution and maintain water quality. The program is used to control point source discharges to surface wastewater, surface stormwater, and groundwater

Soil Screening Levels (SSLs): Used to streamline the evaluation and cleanup of site soils by helping site managers eliminate areas, pathways, and/or chemicals of concern at National Priority List (Superfund) sites

subdivision: An area composed of subdivided lots; the division of one or more tax parcels under control of a single entity into multiple parcels

Stratum: Layers of the earth (geology definition); *plural* – strata or stratums

successional: A gradual process incurred by the change in the number of individuals of each species of an ecological community and by establishment of new species populations that may gradually replace the original inhabitants, e.g., Successional Old Field, Successional Southern Hardwoods

substratum: Any stratum lying underneath another (geology definition)

semi volatile organic compounds SVOCs: Chemicals similar to VOCs, but which do not evaporate as readily

swale: A low tract of land, especially when moist or marshy

Synchro: A traffic engineering software package that complies with the *Highway Capacity Manual 6* and yields intersection Level of Service and delay

Technical and Administrative Guidance Memorandum (TAGM): An official internal NYSDEC Division of Environmental Remediation document that outlines divisional policies or recommended guidance for topics such as determining cleanup goals at hazardous waste sites

terrestrial: Of or relating to or inhabiting the land as opposed to the sea or air

threatened species: A species that may soon become endangered (i.e., near extinction)

topography: The relative elevations of different features in a landscape

transpiration: The evaporation of water from plant leaves: moisture is carried from roots to small pores on the underside of leaves, where it changes to vapor and is released into the atmosphere

trip generation: The projected number of vehicle trips into and out of a particular land use during a specific peak hour, typically a weekday A.M. or P.M. peak hour or the Saturday peak hour

***Trip Generation Manual*:** The ITE publication that is used to develop trip generation for over 170 land uses based on decades of studies conducted throughout the U.S.

unconsolidated: Loose and not stratified

vapor: Barely visible or cloudy diffused matter, such as mist, fumes, or smoke, suspended in the air

vascular plant: A plant that has an internal water and food transport system of specially modified cells that form tube or pipe-like structures

volume/capacity ratio (V/C): A number that compares the peak hour traffic volume, to the theoretical capacity, of a particular lane group

Volatile Organic Compounds (VOCs): Compounds that have a high vapor pressure (i.e., easily evaporate at temperature of use) and low water solubility (not readily dissolved in water)

wastewater: Water that carries wastes from homes, businesses, and industries and comprises a mixture of water and dissolved or suspended solids

water pollution: Contamination of water by materials such as sewage effluent, chemicals, detergents, and fertilizer runoff

Work Zone Traffic Control (WZTC): see Maintenance and Protection of Traffic (MPT)

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Appendix A

SEQRA Documents and EAF

TOWN OF SMITHTOWN

SUPERVISOR
EDWARD R. WEHRHEIM
TOWN COUNCIL
THOMAS J. McCARTHY
LYNNE C. NOWICK
LISA M. INZERILLO
THOMAS W. LOHMANN

Department of Environment & Waterways
RUSSELL K. BARNETT, DIRECTOR
124 West Main Street
PO Box 9090
Smithtown, NY 11787

CERTIFIED MAIL
9214 8901 8819 9400 0000 0178 50

May 17, 2018

Gyrodyne LLC
One Flowerfield – Suite 24
St. James, New York 11780

Re: Gyrodyne Subdivision # 1178

Dear Applicant:

Please be advised that the Planning Board of the Town of Smithtown has recently issued a SEQRA Positive Declaration and Notice of Scoping regarding the above referenced subdivision application, thereby requiring formal scoping and the subsequent preparation of an Environmental Impact Statement in this matter. Enclosed for your reference is a copy of said Positive Declaration and Notice of Scoping. Also enclosed is a copy of the Town of Smithtown's "Standards for the Preparation of Draft and Final Environmental Impact Statements". Please note that a proposed Draft Environmental Impact Statement (DEIS) must comply with all of the preparation standards contained therein. Please also note that the "Standards for the Preparation of Draft and Final Environmental Impact Statements" is a guidance document only and does not replace or supersede any elements of the formal scoping process which is now being undertaken.

As you know, a Draft Scope has been submitted to this office by Mr. Kevin McAndrew of Cameron Engineering & Associates, LLP. Copies of the Draft Scope have been forwarded by this department to all involved and interested agencies and posted on the Town's website (www.smithtownny.gov). The comment period on the Draft Scope runs until June 22, 2018. Upon completion of the comment period, this department will provide a final written scope to you and to your consultants. The final written scope will provide the basis for the subsequent proposed Draft Environmental Impact Statement to be prepared by your consultants.

Upon your completion of a proposed Draft Environmental Impact Statement prepared in accordance with the final written scope, please submit four copies of said document directly to this department for review. The scope, content, and adequacy of said document will be reviewed by this department in order to determine the acceptability of said document.

Please note that the Environmental Impact Statement Review Fee required pursuant to Section 151-2(B) of the Smithtown Town Code must accompany said documents. Therefore, upon your submittal of the above referenced proposed Draft Environmental Impact Statement, please submit a certified check or money order in the amount of twenty-five thousand dollars ($25,000.00) directly to this department, said check payable to the Town of Smithtown.

Please feel free to contact me if you have any questions. Thank you for your anticipated cooperation in this matter.

Very truly yours,

Howard Barton 3rd,
Assistant Environmental Protection Director

HB:hb

Enc.

TOWN OF SMITHTOWN

Department of Environment & Waterways
RUSSELL K. BARNETT, DIRECTOR
124 West Main Street
PO Box 9090
Smithtown, NY 11787

SEQRA POSITIVE DECLARATION
DETERMINATION OF SIGNIFICANCE
AND
NOTICE OF SCOPING

DATE: MAY 9, 2018

LEAD AGENCY: SMITHTOWN PLANNING BOARD
ADDRESS: C/O SMITHTOWN DEPARTMENT OF ENVIRONMENT & WATERWAYS
124 WEST MAIN STREET
SMITHTOWN, NEW YORK 11787

THIS NOTICE IS ISSUED PURSUANT TO 6 N.Y.C.R.R. PART 617, THE IMPLEMENTING REGULATIONS PERTAINING TO ARTICLE 8 OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW (STATE ENVIRONMENTAL QUALITY REVIEW ACT).

THE LEAD AGENCY HAS DETERMINED THAT THE PROPOSED ACTION DESCRIBED BELOW MAY HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT AND THAT PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT STATEMENT WILL BE REQUIRED.

THE LEAD AGENCY HAS ALSO DETERMINED THAT FORMAL SCOPING OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT WILL BE CONDUCTED. A COPY OF THE DRAFT SCOPE IS AVAILABLE ON-LINE AT WWW.SMITHTOWNNY.GOV. WRITTEN COMMENTS ON THE DRAFT SCOPE ARE REQUESTED AND WILL BE ACCEPTED BY THE LEAD AGENCY UNTIL JUNE 22, 2018.

PROJECT: Gyrodyne Subdivision # 1178

PETITIONER: Gyrodyne LLC
ADDRESS: One Flowerfield – Suite 24
St. James, New York 11780

SUFFOLK COUNTY TAX MAP PARCEL #: 0800-40-2-4, 13.3, 13.4, 14, & 15

LOCATION: SE/c/o NYS Route 25A and Mills Pond Road, St. James, Town of Smithtown, Suffolk County, New York.

DESCRIPTION OF PROJECT: Application for subdivision approval to create eight (8) industrial lots (up to six new industrial building lots) and a ninth lot consisting of open space and a sewage treatment plant, with miscellaneous facilities including roadways and recharge facilities, from a partially developed 74.98 acre parcel of land zoned LI and R-43.

SEQRA CLASSIFICATION: Type I Action

SEQRA POSITIVE DECLARATION AND NOTICE OF SCOPING – PAGE 2

PROJECT: Gyrodyne Subdivision # 1178

REASONS SUPPORTING THIS DETERMINATION:

A. The proposal has the potential to result in significant adverse visual and community character-related impacts upon unique and highly valuable cultural resources, including but not limited to the adjacent Route 25A Historic Corridor and Mills Pond Road Historic Corridor;

B. The proposal has the potential to result in significant adverse drainage and wastewater-related impacts upon unique and highly valuable environmental resources, including but not limited to the on-site New York State DEC-mapped freshwater wetlands and the nearby Stony Brook Harbor;

C. Full details and calculations must be provided and reviewed to ensure that the proposed non-standard drainage system will not result in any discharges to the on-site wetlands and will not exacerbate existing local flooding conditions;

D. Full details and calculations must be provided and reviewed to ensure that the proposed sewage treatment plant will not result in any significant adverse impacts upon quality or quantity of surface waters or groundwater. The proposed location of the sewage treatment plant must be evaluated relative to the "Subwatersheds Wastewater Plan Groundwater Contributing Area" so as to minimize potential adverse impacts upon Stony Brook Harbor;

E. The proposal appears to be inconsistent with the Draft Master Plan and Planning Board recommendations regarding the subject parcel, including but not limited to the proposed uses of the subdivided parcels, the depth of the proposed buffer from Route 25A, and the amount of open space to be preserved on-site;

F. The proposal has the potential to result in significant adverse traffic impacts upon the local roadway network, with associated secondary impacts upon air quality and public safety (by adversely impacting emergency vehicle response times). The feasibility and effectiveness of all proposed traffic mitigation measures must be fully described, documented, and subjected to public review;

G. Plans for the remediation of on-site arsenic contamination and the prevention of future industrial or medical contamination must be fully described, documented, and subjected to public review;

H. Cumulative impacts associated with future development of Stony Brook University's adjacent property, particularly in light of Gyrodyne's stated intent to re-open the LIRR grade crossing so as to allow the free flow of traffic between the two properties, must be fully described, documented, and subjected to public review;

I. Growth inducing impacts associated with the potential re-design of the proposed sewage treatment plant with additional capacity to accommodate the sewering of the St. James business district must be fully described, documented, and subjected to public review;

SEQRA POSITIVE DECLARATION AND NOTICE OF SCOPING – PAGE 3

PROJECT: Gyrodyne Subdivision # 1178

J. The viability of the project, as well as the specific limitations which the applicant may be willing to impose upon proposed uses and site design parameters such as building height, floor area, limits of clearing, etc., must be fully described, documented, and subjected to public review; and

K. Alternatives to the proposed action must be identified, considered, and subjected to public review. At a minimum, these alternatives include:

1. No action;
2. Public acquisition for open space preservation; and
3. Development of the subject parcel in full conformance with the Draft Master Plan and Planning Board recommendations, including but not limited to 300' deep buffers, fifty-percent open space preservation, and prohibitions of specific uses;

FOR FURTHER INFORMATION AND TO SUBMIT WRITTEN SCOPING COMMENTS CONTACT:

MR. RUSSELL K. BARNETT, DIRECTOR
ENVIRONMENT AND WATERWAYS
124 WEST MAIN STREET
SMTHTOWN, NEW YORK 11787
PHONE: (631) 360-7514

BY ORDER OF: SMITHTOWN PLANNING BOARD
AS PER RESOLUTION DATED MAY 9, 2018

CC: EDWARD R. WEHRHEIM, TOWN SUPERVISOR
DAVID FLYNN, PLANNING DIRECTOR
VINCENT PULEO, TOWN CLERK
SUFFOLK COUNTY DEPARTMENT OF HEALTH SERVICES
SUFFOLK COUNTY DEPARTMENT OF PUBLIC WORKS
SUFFOLK COUNTY PLANNING DEPARTMENT
SUFFOLK COUNTY WATER AUTHORITY
SAINT JAMES WATER DISTRICT
DIVISION OF REGULATORY AFFAIRS, NYS-DEC REGION I
NEW YORK STATE DEPARTMENT OF TRANSPORTATION
TOWN OF BROOKHAVEN
ENVIRONMENTAL NOTICE BULLETIN
APPLICANT

Standards for the Preparation of
Draft and Final Environmental Impact Statements

I. The following five standards must be met in the preparation of all Environmental Impact Statements:

A. Clarity

1. The proposed activity and all proposed alternatives to the activity must be described in detail. All proposed alternatives must be discussed at a level of detail sufficient to allow objective comparisons between the impacts associated with those alternatives and the impacts expected from the proposed activity;

2. All illustrations (tables, charts, graphs, figures, etc.) must be fully labeled in such a manner that they will be understandable to the general public;

3. The labeling of all illustrations must include the <u>source</u> of the illustration itself (if previously published elsewhere) or of the data presented in the illustration:

4. A Glossary of all technical terms used in the EIS (both body and appendices) must be included in the EIS;

5. All pages in the body of the EIS must be numbered consecutively. All pages within appendices must be consecutively numbered, either independently or as an extension of the numbering system in the body of the EIS;

6. All references to information presented elsewhere in the EIS must include the <u>page number</u> where the cited information is found.

B. Consistency

1. All assumptions and values (or ranges of values) must be consistent throughout the document(s);

2. Narrative discussions must be consistent with all information presented in tables, charts, graphs, etc.

C. Substantiation

1. Absolute statements regarding potential environmental impacts are not acceptable, <u>unless</u> such statements can be fully documented. An example of an unacceptable absolute statement is:

"The project will not adversely impact groundwater quality." An acceptable alternative to the above would be: "The project is not expected to have a significant adverse impact upon groundwater quality.", provided that adequate supporting documentation is provided;

2. All assumptions, figures and values which are not empirically derived must be referenced with footnotes. Said footnotes must include the page number within the cited document where the referenced information may be found;

3. Personal communications with officials (e.g. police, fire department, LIPA, SCWA, etc.) which are relied upon to support information presented in the document must be confirmed in writing, either from the cited official or from a representative of the preparer of the EIS. In the latter instance, the confirming letter should be sent via Certified Mail, Return Receipt Requested and copies of both the letter and the signed receipt included in an appendix to the EIS;

4. All necessary appendices are to be included in the EIS and any appendices specifically prepared for this project must meet all standards applicable to the preparation of an EIS;

5. A complete bibliography, in compliance with all requirements of 6NYCRR Part 617.14, must be attached to the EIS.

D. Format

The proposed Draft Environmental Impact Statement must contain all sections specified in 6NYCRR Part 617.14 and the format <u>must</u> be in conformance with all requirements of said part.

E. Grammar and Syntax

EIS's shall be clearly and concisely written in plain language that can be read and understood by the public. Poor grammar and syntax, as well as the presence of numerous typographical errors, diminish the readability of this EIS and result in the following four additional problems:

1. Such errors diminish the credibility of the EIS when the document is released for public review;

2. Such errors may result in voluminous public comments in which examples of such errors are repeatedly cited, to the exclusion of consideration of the <u>substantive</u> issues addressed in the EIS;

3. Such errors may create confusion among the public and among involved agencies regarding the actual nature of the proposal, mitigating measures and alternatives; and

4. Such errors may affect the clarity and sustainability of the Lead Agency's SEQRA Findings, which include the quotation or citation of sections of the EIS in support of listed findings of fact.

Accordingly, all preparers of EIS's are advised that submitted documents will be reviewed for grammar, syntax, etc. and are encouraged to carefully proofread their work prior to its submittal.

II. All issues identified in the SEQRA Positive Declaration must be addressed in detail. It is recommended that a Scoping Meeting be conducted to discuss the information to be included in the DEIS with regard to these issues. Please contact this department to arrange the Scoping Meeting.

III. If not already addressed in Part II, above, background information regarding the following issues must be presented and discussed in the EIS:

A. Geology

Identify the geological formations underlying the subject parcel, including all water-bearing strata.

B. Soils

Include a map of the soil types on the site, and a summary of the Development Constraints associated with those soil types, both as per the United States Department of Agriculture Soil Conservation Service Soil Survey of Suffolk County.

C. Topography

Include a map of the existing topography, with existing slope ranges (0-10%, 10-15%, 15-25%, >25%) clearly delineated.

Include a map of the existing topography, presented at ~2 foot contour intervals based upon USGS elevations.

Present regrading plans for the proposed action and each alternative, including calculations of the amounts of material to be deposited on or removed from the site.

D. Vegetation and Wildlife

Include a map of the vegetation/habitat types on the site and adjacent to the site.

Present an analysis by a qualified expert of the quality and carrying capacities of the on-site habitat types.

Identify the faunal species associated with the on-site habitat types (modified for location and size) and estimate the numbers of individuals of each species likely to be present on this site.

Calculate the extent of land clearing necessary for the proposed action and each alternative.

Discuss changes in habitat type(s) and carrying capacity which would be expected to result from the proposed action and each alternative.

E. Groundwater and Surface Water Quality

Include a detailed discussion of the local hydrology (based upon the 208 Study and related investigations).

Identify existing groundwater quality.

Calculate and discuss water balance (water use, recharge, precipitation, evapotranspiration, runoff, etc.) and nitrogen loading (considering contributions from both sewage loading and fertilizer use) for existing conditions, the primary proposal and all alternatives. Identify the proposed method of sewage disposal and address compliance with applicable SCDHS standards for sewage effluent.

F. Traffic

Include a current traffic study of the surrounding area, with full consideration of existing and anticipated traffic conditions at major routes and intersections.

Calculate and discuss traffic generated by the primary proposal and by all alternatives during both peak and off peak hours.

Discuss potential impacts upon pedestrian traffic.

Discuss the availability of public transportation in the vicinity of the project.

G. Community Services

Provide written confirmation regarding the availability of public utility services (LIPA, SCWA, etc.) for the proposed action and all alternatives.

Provide written confirmation in support of your discussions of the impacts of the proposed action and all alternatives upon existing community services (e.g. police, fire and ambulance services, local school district, etc.).

Calculate solid waste generation rates for the proposed action and all alternatives.

H. Taxes/Economic Impacts

List the tax revenues currently generated by the subject parcel.

Calculate and list the projected tax revenues which would be generated by the primary proposal and by all alternatives.

Identify and discuss any beneficial or adverse economic impacts associated with the primary proposal and with all alternatives.

I. Land Use and Open Space Preservation

Identify existing zoning and development patterns in the vicinity of the site. Include accurate maps of both zoning and development patterns.

Discuss the impacts of the primary proposal and all alternatives upon existing zoning and development patterns.

Discuss any growth-inducing aspects of the primary proposal and all alternatives.

Address the loss of open space resulting from the development of the subject parcel.

Identify any design measures (e.g. clustering, land banking of parking, etc.) which will be included in the primary proposal and/or any alternatives to preserve open space at this site.

J. Air Quality

Identify the existing air quality in the vicinity of the subject parcel.

Identify, quantify and discuss the air quality impacts of the primary proposal and all alternatives, including those impacts associated with construction activities on the subject parcel.

K. Noise

Identify the existing noise regime in the vicinity of the subject parcel.

Identify, quantify and discuss the noise impacts of the primary proposal and all alternatives, including those impacts associated with construction activities on the subject parcel.

L. Visual Impacts

Identify any significant visual resources in the vicinity of the subject parcel.

Access the potential visual impacts of the primary proposal and all alternatives.

M. Historic and Cultural Resources

Identify any significant historic and cultural resources in the vicinity of the subject parcel.

Assess the potential impacts of the primary proposal and of all alternatives upon these historic or cultural resources.

IV. Alternatives

The alternatives which **must** be addressed in the DEIS have been identified in the SEQRA Positive Declaration, the attached scoping letter, and/or the previously conducted scoping meeting. The applicant is free to discuss any additional alternatives in the DEIS, but is encouraged to limit said discussion to those additional alternatives which the applicant may actually wish to pursue or to those activities which would currently be permitted at the subject parcel(s). **All** alternatives must be addressed at a level of detail sufficient to permit a comparative assessment of the potential impacts associated with each alternative.

DATE: July 7, 2018

FINAL SCOPE
DRAFT ENVIRONMENTAL IMPACT STATEMENT
GYRODYNE, LLC SUBDIVISION

MILLS POND ROAD AT NORTH COUNTRY ROAD
ST. JAMES, TOWN OF SMITHTOWN, SUFFOLK COUNTY, NEW YORK

Introduction

This document is a Final Scope for the Draft Environmental Impact Statement (DEIS) for the proposed action, a subdivision of the Gyrodyne property. The applicant is describing the proposed action ("the Gyrodyne Subdivision") as a mixed-use sustainable campus development comprised of land uses that the applicant states would have synergies with Stony Brook University, Medical Center, and the Research and Development Park: hotel, general offices, medical offices, research and development-R&D offices, and assisted living. Additionally, the subdivision would require a new wastewater treatment plant due to the density of proposed development. The application includes interior roads designed to accommodate bicyclists as well as vehicular traffic, and new pedestrian greenways. Currently, the westernmost sections of the site are occupied by mixed-use light industrial and commercial uses and the Flowerfield Celebrations catering facility.

The DEIS will include a conceptual site plan for the purpose of quantifying the potential environmental impacts of reasonably anticipated future development, and identifying corresponding mitigation measures. It is recognized that future development of the site may vary somewhat from that anticipated at the subdivision stage (due in part to future demand for specific services), therefore the DEIS will establish a range of potential impacts and associated mitigation measures for one or more categories of environmental impacts (e.g. transportation and wastewater treatment) that could apply to different land use mixes so long as those uses are predominantly similar to the DEIS framework.

The 74.98-acre property (also known as "Gyrodyne" or "Flowerfield") comprises 65.41 acres zoned LI (Light Industrial) and 9.57 acres zoned R-43. No changes of zone are proposed. The property is situated on the east side of Mills Pond Road, the south side of North Country Road-NYS Route 25A, the north side of the Long Island Rail Road (LIRR) tracks, and generally west of Stony Brook Road. The property is in the hamlet of St. James, Town of Smithtown, Suffolk County (SCTM 0800-40-2-4, 13.3, 13.4, 14, 15).

To ensure that the DEIS will address all significant issues, the Planning Board of the Town of Smithtown, as lead agency, has issued a Positive Declaration and has elected to conduct formal scoping pursuant to the New York State Environmental Quality Review Act (SEQRA) regulations set forth at 6 NYCRR §617.8. This Final Scope provides a description of the proposed action, the applicant's proposed content for the DEIS, and relevant issues identified during the public scoping period. This Final Scope has been prepared in accordance with 6 NYCRR §617.8(f) and sets forth the following:

- Brief description of the proposed action
- Potentially significant adverse impacts
- Extent and quality of information needed to adequately address potentially significant adverse impacts
- Initial identification of mitigation measures
- Reasonable alternatives to be considered

Organization of DEIS

The DEIS will comply with 6 NYCRR Part 617.9 (b)(3) which specifies the content of an EIS. A proposed table of contents follows:

Cover Sheet

Table of Contents

1.0 Executive Summary
2.0 Project Description
  2.1. Introduction and Location
  2.2. Purpose and Need
  2.3. Subdivision Benefits
  2.4. Operation
  2.5. Covenants, Restrictions, and Easements
  2.6. Design and Layout; Landscaping and Site Amenities
  2.7. Parking and Access Improvements, Circulation
  2.8. Sustainability, Use and Conservation Of Energy
  2.9. Regulatory/Approval Process
  2.10. Construction
3.0 Geology
  3.1. Existing Conditions
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  3.3. Proposed Mitigation
4.0 Soils
  4.1. Existing Conditions
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  4.3. Proposed Mitigation
5.0 Topography
  5.1. Existing Conditions
  5.2. Potential Impacts of Proposed Subdivision
  5.3. Proposed Mitigation
6.0 Vegetation and Wildlife

Brief Description of the Proposed Action

The Gyrodyne site was historically utilized as an industrial and commercial property. Until the fall of 2005, the Gyrodyne property comprised ±320 acres including the current subject property and the ±245 acres on the south side of the LIRR tracks. On-site building space comprised approximately 180,000 square feet of space.

In the fall of 2005, New York State undertook a condemnation action ("eminent domain") to acquire the southerly 245-acre portion and the buildings located thereon. The taking area is now utilized as the Stony Brook University Research and Development Park.

Subsequent to the completed State taking of the southerly property, Gyrodyne has examined multiple possibilities for redevelopment on its remaining, current 74.98-acre property. Prior proposals had involved a change of zone, whereas the proposed subdivision does not. All potential new uses are permitted in the LI zone.

The subdivision and proposed land use mix are based on extensive market study and the Town's stated desire for development that complements and benefits from proximity to Stony Brook University (including the Medical Center and the Research and Development Park).

The proposed action is a subdivision of the Gyrodyne property into up to nine (9) separate lots: eight (8) lots that could be developed in the future together or individually, and a ninth lot comprised of commonly-owned, non-developed areas including 200-300 foot buffers and open space. As this action is a subdivision, the eventual development could vary. An envisioned land use mix is as follows (see attached subdivision plan):

Existing uses – to remain:

- Lot 1: the existing light industrial uses.
- Lot 2: the existing Flowerfield Celebrations catering hall.

Potential new uses:

- Lot 3: envisioned as 181 landbanked parking spaces that would serve potential future overflow from Lot 1, and which would only be paved/built if needed. The DEIS will assume that this lot will be paved.
- Lot 4: envisioned as a 150-room hotel with a 150-seat restaurant, a 500-seat conference space, and a 10,000 square foot day spa/fitness center. The hotel would serve the local community as well as the on-site catering hall, on-site offices, Stony Brook University, Stony Brook University Medical Center, and the Stony Brook Research and Development Park. The EIS will address the impact this proposed hotel will have on existing hotel, restaurant, and conference facilities in the surrounding area.
- Lots 5 and 6: envisioned as 130,000 square feet combined of medical office, general office, or technical R&D office space that could support Stony Brook University, Stony Brook University Medical Center, and/or the University's Research and Development (R&D). The lots could be developed separately or as one larger lot.
- Lots 7 and 8: envisioned as 220 total assisted living units that could be developed separately or in one combined larger lot. The applicant has stated that there would be a synergy with the University Medical Center and with the subdivision's medical office space for residents' medical care. The EIS will examine the capacity of the Stony Brook University Medical Center to handle the projected medical needs from 220 assisted living units.
- Lot 9: a commonly-owned and operated lot encompassing ±24 acres of open space, the internal road network, drainage, and a proposed wastewater treatment plant (WWTP) to serve all of the uses on the 74.98-acre property. The EIS will specify how much of this lot will preserved as open space and how much will be used for the road network, drainage, and the wastewater treatment plant. The EIS will also identify any changes in these acreage distributions which may be associated with the construction of a larger wastewater treatment plant to accommodate the sewering of the St. James business district.

Vehicular access on Mills Pond Road will remain the same. A new Route 25A access is proposed near the mid-point of the site's northerly frontage, and the existing Route 25A curb cut near the northeast corner of the site will remain as emergency access and as access to the proposed WWTP.

The overall property would have 2,002 paved parking and 322 land-banked spaces, utilizing shared parking to limit paved area.

The subdivision would have a new WWTP and would add to existing connections to public water, electrical distribution, and natural gas infrastructure.

To implement the proposed action, the following approvals/permits are required:

Agency	Approval/Permit
Town of Smithtown Engineering Dept	Stormwater Pollution Prevention Plan (SWPPP)
Town of Smithtown Planning Board	Subdivision
Town of Smithtown Town Board	Site Plans for development on individual lots
St. James Water District	Connect new uses to the public water system
Suffolk County DHS	Subdivision, On-Site Wastewater Treatment Plant (WWTP)
Suffolk County Planning Commission	Subdivision Referral (complete as of 2018)
NYSDEC	Freshwater Wetlands Permit, SPDES Permit for on-site WWTP
NYSDOT	Highway Work Permits

Potentially Significant Adverse Impacts

The DEIS will be prepared in accordance with this Final Scope promulgated by the lead agency and in accordance with 6 NYCRR §617.9(b). Based upon review of the site, the proposed plan and the Environmental Assessment Form (EAF), a Positive Declaration was issued by the Planning Board of the Town of Smithtown on May 9, 2018 identifying the following potential impact issues:

- visual and community character;
- drainage and wastewater; wetlands;
- surface water and groundwater quality and quantity;
- traffic and associated air quality/public safety (emergency response time);
- on-site arsenic contamination;
- cumulative impacts with the adjacent Stony Brook University property;
- growth-inducing impacts of the on-site WWTP;
- viability of the project; and
- conformance with the (not adopted) 2016 Draft Comprehensive Plan Update (currently in the process of being rewritten).

The identified potential significant adverse impacts (both during construction and operation of the proposed subdivision uses), as well as other relevant issues, will be fully addressed in various DEIS sections, as briefly outlined below.

Extent and Quality of Information Needed to Address Potentially Significant Impacts

The following describes the level and type of analysis to address each section of the DEIS.

Description of the Proposed Action

Project Introduction and Location

- There will be a brief discussion of the project location, including appropriate maps and aerial photographs, tax lot numbers, tables, and a discussion of adjacent land use.
- Discuss the proposed subdivision and the history of the site, including historical uses, past zoning applications, the 2005 eminent domain property taking by New York State, and the current uses on the site.

Purpose and Need

- The document will discuss the justification for the proposed subdivision in terms of the potential new land uses the subdivision could accommodate, Town goals for the site as issued in earlier Town planning documents, and public needs.

Subdivision Benefits

- This section will identify and discuss the subdivision's potential environmental benefits, and describe how sustainable and Complete Streets planning guidelines are to be incorporated into the subdivision as mitigation measures.
- Include a complete Fiscal and Economic analysis to determine benefits to the local school district, Town, and County tax revenues, construction and long-term job creation, and the direct, indirect, and induced benefits from newly created jobs (the "economic ripple effect"). This analysis will also identify and assess the demand that build-out will place on community services and will include identification of any government subsidies or relief of taxes that the applicant will seek.

Operation

- This section will describe the potential land use on each lot, including the proposed wastewater treatment plant.

Covenants, Restrictions, and Easements

- There will be a discussion of relevant easements and/or deed restrictions at the property.

Design and Layout; Landscaping and Site Amenities

- This section will provide information on the proposed subdivision, including zoning, build-out data (e.g., areas of buildings, impervious pavement, landscaping, buffers, etc. expressed in acreages and percentages) for individual lots and for the overall property.
- Describe the design approach to enhance aesthetics, maintain required buffers, provide a connective green belt, etc.

Parking and Access Improvements, Circulation

- This section will summarize the proposed parking on each lot and on the entire site, and will describe the proposed shared parking and landbanked parking.
- Provide a discussion of the proposed subdivision road layouts, lengths, and width as it pertains to Town standards and available width for pedestrians and bicyclists.
- Describe the proposed changes to site access, and projected use of stop sign vs. signal control.
- Describe traffic generation, on-site wayfinding signage.

Sustainability, Use and Conservation Of Energy

- Describe existing utilities and on-site and adjacent infrastructure systems. Describe infrastructure requirements, including wastewater treatment and stormwater management.
- Describe potential means of conserving energy once the subdivision uses are operating.
- Discuss sustainability practices, such as green technologies, subdivision green belt, landbanked parking, on-site WWTP) in a qualitative manner.

Regulatory/Approval Process

- This section will provide a discussion of the SEQRA process as it pertains to the proposed subdivision. The required local, County, and State approvals will be listed as well.

Construction

- This section will describe the projected construction schedule, the opportunity for phased construction, and potential mitigation measures to mitigate construction impacts.
- Summarize the potential impacts associated with demolition and construction of the proposed subdivision. It is premature to discuss construction schedules and phasing. A qualitative discussion of travel routes and construction-related traffic and parking (construction workers) will be included. Potential noise impacts associated with demolition and construction activities will be qualitatively evaluated compared to applicable noise limits (Town noise ordinance). Potential construction-related erosion and sedimentation due to ground disturbance and grading, air quality (including fugitive dust), vibration and visual/aesthetic impacts will also be qualitatively discussed, as will the anticipated mitigation measures inherently required by a SWPPP. Construction-related employment projections, as well as the socioeconomic impacts of construction on the surrounding community will be summarized, based on the Fiscal and Economic analysis.

<u>Geology</u>

This section will briefly describe the underlying aquifer and the depth to bedrock below the property, with a discussion of the subdivision's impacts to surface glacial deposits.

<u>Soils and Topography</u>

The Soil Survey of Suffolk County will be used to determine the general soil types on the site and the characteristics of such soils. Soil borings will be discussed in terms of their applicability to the future stormwater management system design. If available, site-specific soil boring data will be presented and discussed in this section of the DEIS.

The DEIS will also include topographic information reviewed from both the relevant United States Geologic Survey (USGS) maps and site-specific topographic survey.

A thorough narrative description of the potential impacts to soils and topography and strategies to minimize such impacts will be included in the DEIS. This section will include a discussion of typical mitigation measures for potential erosion and off-site sediment transport, and the means by which the Town will enforce same, as typically required for a Stormwater Pollution Prevention Plan (SWPPP). The DEIS will also discuss the changes in topography that would result from the proposed action and will provide estimates of the cut and fill required, as applicable.

This section will discuss the project's site history and current environmental conditions of the site based on published data and available Phase I and Phase II Environmental Site Assessments (ESAs). The results of such ESAs and/or subsurface investigations will be summarized in this section. An evaluation of this information and the proposed action will determine whether the project may increase the exposure of people or the environment to hazardous materials, and, if so, whether this increased exposure would result in potential significant public health or environmental impacts. This section will include the results of the recently completed closure reports of the Phase II and Phase III ESA's remediation recommendation and actions, and will include a description of the Soil Management Plan specified for the management of arsenic-impacted soils during the construction of the proposed development.

Vegetation and Wildlife

This section of the DEIS will describe the ecological surveys done at the property in 2006, 2008, and 2017 as part of ecological conditions assessments. Ecological communities, on-site and nearby wetlands, identified flora and fauna, and endangered species will be described. The site is actively used by grassland species such as American Kestrel and Eastern Meadowlark. Grassland species have declined precipitously on Long Island. The potential for habitat preservation of grassland species will be addressed for the subject proposal and all alternatives.

The subdivision's potential impacts to these features will be described, as will the mitigating measures incorporated to minimize said impacts. The relative impacts of project alternatives will be qualitatively described.

Groundwater and Stormwater Collection, Treatment, and Recharge; Wastewater Recharge

This section will describe groundwater and surface water. The site is currently served by public water (St. James District), and sanitary flow is proposed to be accommodated via the proposed on-site WWTP. A discussion of the hydrogeologic zone, general groundwater quality and depth to groundwater will be included. Potable water demand and sanitary flow for the proposed action will be projected. Additional discussion of water supply and sewage disposal, including infrastructure issues, will be included in the Community Services section of the DEIS.

Site drainage and stormwater management will also be presented. Existing and proposed on-site stormwater management infrastructure will be described, with supporting calculations of the proposed on-site stormwater storage capacity relative to the amount of new stormwater runoff. The proposed methodology behind the new stormwater collection, conveyance, and management systems will be discussed and analyzed for compliance with applicable regulatory requirements, including the County regulations and standards for on-site storage volume. The DEIS will identify reasonably anticipated changes to precipitation patterns and any need for additional drainage capacity to account for State climate change projections.

This section will discuss the proposed stormwater management system's design to minimize stormwater impacts from the proposed subdivision, to retain all stormwater on site, and to make use of Best Management Practices (BMPs) and green infrastructure.

There is a mapped wetland at the southwest corner of Route 25A and Mills Pond Road and another mapped wetland in the western portion of the subject parcel. The adequacy of the proposed buffers to the on-site wetland, and the potential for impacts upon both wetlands, will be addressed in this section of the DEIS.

Recharge associated with the WWTP will be addressed with a specific discussion about groundwater travel rates, in accordance with the Suffolk County Comprehensive Water Resources Management Plan model of groundwater travel time to the nearest major surface water interface (i.e. Stony Brook Harbor). The EIS will address the increases in both mass loading (i.e. annual loads by quantity) and concentration (i.e. in parts per million) of nutrients and contaminants (such as pharmaceuticals and medical waste) that will occur to groundwater and surface waters of Stony Brook Harbor and Smithtown Bay from the build out of the proposed development, as well as additional increases due to increasing the capacity of the wastewater treatment plant to accommodate sewering of the St. James business district. Timing of the construction of the wastewater treatment plant relative to other on-site construction will be discussed.

The assessment of the potential environmental impacts of the wastewater treatment plant will include:

- Description and analysis of the flow direction of groundwater and effluent discharge from the wastewater treatment plant, along with the amounts of treated effluent; integrate and correlate such data with the Suffolk County Subwatershed maps and other maps showing area geology, and estimate of how quickly the discharge will reach Stony Brook Harbor and Smithtown Bay.
- Description and analysis of the anticipated movement and flow rates, dispersal rates, and residence time of nitrogen and other discharges from the wastewater treatment plant in the groundwater as it moves away from the wastewater treatment plant.
- Description and analysis of the impact of added nitrogen and other chemicals from the wastewater treatment plant discharge upon the wetlands of Stony Brook Harbor and upon the finfish, benthic organisms, and other biota in Stony Brook Harbor and Smithtown Bay, with special reference to the Swanson, Bowman et al report concerning nitrogen impacts, hydraulic circulation patterns, and hypoxia in Smithtown Bay.
- Description and analysis of any impacts upon private drinking water wells for residences in the area.
- Examination and analysis of possible impacts of the wastewater treatment plant discharge upon the issues raised in the Suffolk County Subwatershed Management Plan, which identifies the area as under nitrogen stress, and correlation with the hypoxia maps prepared by the Long Island Sound Program.
- Description and analysis of anticipated increases in nitrogen and other chemicals in terms of mass loading if sanitary waste from the St. James business district is sent to the Gyrodyne wastewater treatment plant; including in estimate of the maximum capacity of a wastewater treatment plant at this location.
- Analysis and description of the existence, treatment, and impact of potential medical waste and pharmaceuticals from assisted living centers or other types of assistance centers as is being suggested may be built by the project sponsor.

- Identification of triggers for any site-specific supplemental EIS, and mechanisms for continuing improvements to the wastewater treatment plant as technology advances or regulatory standards change.

Transportation and Parking

A comprehensive transportation and parking study will be conducted of the existing traffic conditions to evaluate the effects of the proposed subdivision-generated traffic on the surrounding roads and intersections, as well as upon the nature and character of the surrounding area. The potential for increased traffic on Route 25A to result in diversion of traffic onto local roads (such as Harbor, Hitherbrook, Three Sisters, and Harbor Hill Roads), and the physical ability of such roads to accommodate additional traffic, will be evaluated. The results will be summarized in this section and the complete study will be appended to the DEIS.

Existing roadway features in the study area, including the number, direction and width of travel lanes, posted speed limits, maintenance jurisdiction, and traffic control devices will be identified.

Turning movement counts will be conducted on typical weekdays during the weekday a.m. peak period (7:00 a.m. to 9:00 a.m., extended to 9:30 a.m. at two intersections), weekday p.m. peak period (4:00 p.m. to 6:00 p.m.), and Saturday midday peak hour (11:00 a.m. to 2:00 p.m.) at the following intersections (also depicted on Figure 2, attached). These timeframes coincide with the peak periods of traffic activity of the property and surrounding roads. Traffic counts will be adjusted as appropriate to an average month using NYSDOT monthly adjustment factors.

- Route 25A at Mills Pond Road
- Route 25A at Stony Brook Road
- Route 25A at Lake Avenue
- Route 25A at Moriches Road
- Moriches Road at Lake Avenue
- Moriches Road at Mills Pond Road
- Moriches Road at Woodlawn Avenue
- Route 347 at Moriches Road
- Route 25A at Main Street
- Stony Brook Road at South Drive
- Stony Brook Road at Oxhead Road
- Stony Brook Road at Hallock Road
- Stony Brook Road at Route 347
- Mills Pond Road Existing Site Access 1
- Mills Pond Road Existing Site Access 2
- NYS Route 25A Site Access (proposed)
- Stony Brook Road and Development Drive (not counted on Saturday due to the inactivity at the Stony Brook Research & Development Park)

The intersections include the entire scope of prior traffic studies of the Gyrodyne property, intersections studied for the Stony Brook University 2004 Final Generic Impact Statement (FGEIS), and supplemented with input from the Town of Smithtown Department of Environment and Waterways (DEW).

The traffic study will determine the existing "Level of Service" (LOS) operating conditions during these three peak hour periods using the appropriate methodology presented in the *Highway Capacity Manual* using Synchro software.

An assessment of the most recent 3-year accident history from NYSDOT for key locations will be performed: North Country Road between Mills Pond Road and Lotowana Lane, past Main Street, and Stony Brook Road between North Country Road and Glenridge Avenue, just south of Hallock Road). The data will be summarized for any significant trends/patterns that might be impacted by the proposed subdivision, to identify or tailor corrective measures.

"No Build" traffic conditions in the year 2020 (the "Build year") will be projected by applying a background traffic growth factor from NYSDOT to the counted traffic volumes. In addition, traffic generated by other planned developments in the vicinity of the site will be identified and if warranted, will have their projected traffic included in the "No Build" scenario. Projected traffic will be based on the Institute of Transportation Engineers (ITE) *Trip Generation* manual, 10th Edition, using focused northeast-U.S. data where available. Additionally, planned or approved NYSDOT road/intersection improvements will be incorporated into the No Build scenario.

The traffic study will include "traffic signal warrant" analysis at the intersection of Route 25A-Mills Pond Road to determine if a signal installation approved by NYSDOT in 2007 is still warranted. Additional signal warrant analysis will be done at other study intersections as appropriate. Signal warrant analysis will follow the protocols in the federal *Manual on Uniform Traffic Control Devices* (MUTCD) and New York State Supplement.

Trip generation will be projected based on the ITE *Trip Generation Manual, 10th Edition*, using focused northeast-U.S. data where available. Based on the anticipated mix of uses and the LIRR grade crossing to access the Stony Brook Research and Development Park, shared/internal trips will be determined and applied.

The subdivision-generated traffic, based on a preferred mix of land uses and densities, will be distributed to the key intersections and added to the No Build volumes to calculate "Build" scenario traffic volumes. Recognizing that the ultimate build-out might be a variation of compliant land use and density, the Alternatives section of the DEIS document includes three (3) variations of similar land use and density to illustrate the potential range of development options within proposed associated mitigation. The No Build and Build scenarios will be analyzed using the latest version of Synchro to determine the impacts of the proposed subdivision on surrounding roads.

The study will determine the appropriate traffic control and number of entry-exit lanes at each site access (existing and proposed).

On-site parking will be compared to Town of Smithtown requirements, and the use of landbanked parking and shared parking (individual paved spaces which can serve different uses at different times) will be incorporated based on ITE *Parking Generation* data, as a green, sustainable measure. Internal circulation for the subdivision and emergency access will be discussed.

Complete Streets will be discussed with respect to interior road widths, bicycle use, pedestrian routes, and the proposed greenbelt within the subdivision. The availability of public transportation options and potential impacts as a result of the project will be evaluated.

The study will discuss the proposed use of the railroad crossing between Gyrodyne and the Stony Brook Research and Development Park, both with regards to potential hazards to the motoring public relative to the frequency of trains on this branch and to potential impacts upon traffic circulation on-site and redistribution of traffic to and from the site.

The potential for any construction-related traffic impacts due to the project will be qualitatively evaluated using any available information about the construction process.

The need for traffic mitigation measures will be determined based upon the results of the traffic analyses. The study will identify the parties responsible for implementing off-site traffic mitigation.

At the intersection of Route 25A and Stony Brook Road, per direction from NYSDOT, the study will examine two potential means of mitigation intended to address existing congestion-safety concerns as well as accommodating subdivision traffic.

Community Services

The existing community facilities and services, as well as utilities (i.e., police, fire, ambulance, solid waste, water supply infrastructure, sewer infrastructure, electricity and natural gas), and the ability of these services to accommodate the proposed development will be discussed. The impact assessment will include consultations with each respective service provider, to the extent possible, to determine the existing facilities and ability to serve the proposed future development. The DEIS will identify any potential increased demand upon community recreational facilities such as Avalon Park, Veterans Memorial Park, and Oxhead Road Park, as well as any planned on-site amenities to reduce such potential demand.

Taxes/Economic Impacts

This section of the DEIS will discuss the existing economic development associated with Gyrodyne and Flowerfield catering hall. The analysis will calculate the socioeconomic impacts of the new land uses. Employment benefits, including the generation of construction and permanent jobs, will be estimated using an economic modelling program, IMPLAN. Changes in economic productivity including direct, indirect, and induced spending will also be calculated. The net effect (increased economic productivity, relative to increased demand on services) will be assessed. Specifically, the DEIS will discuss the net property tax benefits associated with increased school district revenues compared to adding zero school-aged children (tax positive project). Secondary impacts, such as affordable housing for new employees and additional school-aged children associated with such employees, will be assessed.

Land Use and Open Space Preservation

This section of the DEIS will describe and provide maps depicting the existing land uses, zoning, and character of the project site and the surrounding area. The surrounding properties will be identified in this section of the DEIS, as defined by the following boundaries: the west side of Mills Pond Road, the north side of North Country Road-NYS Route 25A, Stony Brook University and Stony Brook Medical Center, and the Stony Brook Research and Development Park. A physical description of the site (i.e., size, boundaries, etc.), along with the existing facilities, will also be provided. As part of this effort, relevant land use plans and zoning regulations will be reviewed and analyzed.

This section of the DEIS will also discuss the proposed review and approval process that will pertain to the subdivision plan and subsequent detailed site plans, and will describe any provisions for flexibility to allow the adjustment of uses as the subdivision is developed over the long term.

This section will also describe the proposed action in detail. The DEIS will present the subdivision plan that will clearly identify all areas proposed for development with buildings, parking areas, walkways, landscaping, etc. as well as all impervious areas and their use, and will compare same to the existing condition.

Furthermore, an analysis will be performed to gauge the constraints to be incorporated into the subdivision plan (i.e. required buffers on Route 25A and from any residentially zoned property, maximum building heights, limits on development) to minimize impacts to community character. The findings of this analysis will be documented in the DEIS.

The above information will be compiled into an assessment of the subdivision's compatibility with surrounding land uses and zoning and the project's conformance with relevant land use plans, as applicable. This section will also include a discussion of the potential changes in the character of the surrounding community, including land use patterns and socioeconomic characteristics, due to the proposed subdivision.

Air Quality

Existing ambient air quality, climate, and meteorological data for the project area will be and summarized. The project area's status regarding the National Ambient Air Quality Standards (NAAQS) (i.e., whether the affected areas are designated as being attainment [complying with the NAAQS], nonattainment [not complying with the NAAQS] and maintenance [previously nonattainment that currently complies]) will be identified.

The subdivision is not expected to generate a significant number of diesel trucks or be of air toxics concern, so a mobile source air toxics analysis (MSATs) will not be required in the DEIS.

<u>Noise</u>

This section of the DEIS will qualitatively assess potential significant adverse noise impact associated with the proposed action. The document will discuss the anticipated buffers to nearby streets, the type of anticipated land uses and their typical propensity for generating exterior noises, and the ability to minimize new site-generated noise and construction noise using best management practices.

This section of the DEIS will also examine potential construction-related noise impacts, relative to the Town's noise ordinance requirements.

<u>Visual Impacts</u>

This section of the DEIS will discuss and depict (through representative photographs) the aesthetic character of the subject site and surrounding area. Views of the subject site from surrounding areas will be presented from vantage points along Mills Pond Road and North Country Road-Route 25A. Potential changes to visual character from various off-site vantage points will be evaluated through the provision of post-development depictions (i.e., sight-line studies and realistic photo-simulations/renderings) of these same vantage points, supplemented with narrative descriptions.

The wide existing and proposed buffers to adjacent streets/uses will be described. This section will include a discussion of overall design guidelines for the site, including signage prohibitions in the buffer zone and limitations on building heights, so as to minimize adverse visual impacts on the historic Route 25A corridor.

The potential architectural style of the proposed WWTP will be described vis-à-vis its planned contextual aesthetic.

<u>Historic and Cultural Resources</u>

The document will discuss any potential impacts to historical properties eligible for or listed on the State and/or National Registers (S/NR) of Historic Places. This section will also summarize the results of past Stage 1A, Stage 1B, and Stage 2 archeological studies of the Gyrodyne property that were performed for prior development applications, tailored to remove data that references the area taken by New York State under eminent domain.

<u>Alternatives</u>

Pursuant to 6 NYCRR Part 617, the DEIS must contain a description and evaluation of reasonable alternatives to the proposed action. The DEIS will fully analyze the impacts of the following alternatives and quantitatively and qualitatively compare these impacts to those associated with implementation of the proposed action, based upon the issues outlined above.

Town Required Alternatives:

- No Action (site remains as it currently exists)
- Public Acquisition
    - ➢ The applicant's interpretation is that the Town or County would subdivide and acquire the vacant area and preserve it as public open space. This has similar environmental impact as

the No Action scenario, except the acquiring agency may have to fund on-site demolition and remediation if currently developed portions of the site are acquired. This scenario is included as a separate alternative so as to consider the various public benefits associated with public acquisition of this currently privately-owned parcel, including public access, recreation, permanent preservation, aesthetics, and enjoyment.

- Development in conformance with the Draft Master Plan
  - ➢ While this alternative is mentioned in the Town's Positive Declaration, the Gyrodyne-specific design parameters contained in the Draft Master Plan were never officially adopted and may be rewritten. Based on these circumstances, this Alternative will be limited to identification of the Gyrodyne-specific design parameters contained in the unadopted Draft Master Plan, a conceptual site plan of a development in full conformance with those design parameters, and discussion of the economic viability of developing this site in full conformance with those design parameters.

As the project is a subdivision and the future uses are not specifically known, three potential alternatives based on similar trip generation projections, room for adequate on-site parking, and similar projected water demand and wastewater generation will also be analyzed to illustrate the potential range of development options following subdivision of the property:

- Development Alternative 1: Retain existing uses, 100-room (smaller) hotel, 150,000 s.f. (larger) offices, and 150 (fewer) assisted living units
- Development Alternative 2: Retain existing uses, no hotel, 150,000 s.f. (larger) offices, and 192 (fewer) assisted living units
- Development Alternative 3: Retain existing uses, 120-room (smaller) hotel, 136,000 s.f. (larger) offices, and 250 (more) assisted living units

Two additional alternatives 4 and 5 represent non-subdivided development in accordance with existing LI zoning, for comparative purposes.

- Development Alternative 4: Retain existing uses, no hotel or assisted living, 244,000 s.f. (larger) medical office
- Development Alternative 5: Retain existing uses, no hotel or assisted living or offices, and 382,500 s.f. of new light industrial uses

<u>Unavoidable Adverse Impacts</u>

The environmental impacts associated with the proposed subdivision and the proposed mitigation measures to minimize such impacts will be described in the previous sections. Those impacts that cannot be either entirely avoided or fully mitigated will be described in this section of the DEIS.

<u>Irreversible and Irretrievable Commitment of Resources</u>

An irreversible or irretrievable commitment of resources refers to impacts on or losses to resources that cannot be recovered or reversed. Such resources will be described in this section of the DEIS.

<u>Growth-Inducing Aspects</u>

Growth-inducing aspects are generally described as the long-term secondary effects of the proposed action. This section of the DEIS will discuss the WWTP's potential for the plant, as designed, to have expansion capacity to accommodate the sewering of the St. James business district and the potential environmental impacts of such expansion. The formation of a sewer district to serve the business district would be subject to a separate SEQRA review.

List of Acronyms and Abbreviations
The document will list the technical acronyms-abbreviations for reference.

Glossary
This section will define technical terms utilized in the document.

Bibliography
This section will list the titles, authors, and publication dates (and online website addresses, as applicable) for referenced information not provided by the applicant.

Extent and Quality of Information Needed to Adequately Address Potentially Significant Adverse Impacts

To conduct the analyses of potential adverse impacts, available information will be collected and reviewed, and empirical information will be developed. Relevant information from previous DEIS analyses for the Gyrodyne property will be incorporated as appropriate. While it is not possible to determine all information sources to be used, the following represent sources/research that have been preliminarily identified as necessary to perform the required analyses in the DEIS.

Geology

- NYSDEC environmental databases
- Relevant NYSDEC, USEPA and Town documents related to the subject property

Soils and Topography

- *Soil Survey of Suffolk County*
- Soil borings and soil sampling on-site, as available
- Phase I and Phase II reports
- United States Dept. of Agriculture Natural Resources Conservation Service Soil Survey Manual
- USGS Maps and site-specific topographic surveys

Vegetation and Wildlife

- Previous ecological site assessments

Groundwater; Stormwater Collection, Treatment, and Recharge; Wastewater Recharge

- USGS water table map, Long Island Depth to Water Viewer, and monitoring well data
- *Suffolk County Comprehensive Plan 2035*, Groundwater travel time model, and Volume 1 Appendix B, Map 2 Hydrogeologic Zones
- Suffolk County Sanitary Code
- *New York Guidelines for Urban Erosion and Sediment Control*
- *New York State Stormwater Management Design Manual*
- Consultations with SCDPW

- NYSDEC Freshwater Wetland/National Wetland Inventory maps

Transportation and Parking

- Traffic data collection
- Most-recent three-year accident data
- Institute of Transportation Engineers (ITE) *Parking Generation*, 4th Edition
- Institute of Transportation Engineers (ITE) *Trip Generation*, 10th Edition
- *Highway Capacity Manual*, latest edition
- Synchro software
- American Association of State Highway and Transportation Officials (AASHTO) “Policy on Geometric Design of Highways and Streets”
- Federal Highway Administration “Manual on Uniform Traffic Control Devices” (MUTCD) and New York State Supplement
- Consultations with Town of Smithtown, SCDPW, NYSDOT, Stony Brook University

Community Services

- Consultations with community service providers (e.g., police, fire departments, ambulance services, water purveyors, sanitary and solid waste facilities, utility providers [i.e., PSEG Long Island, National Grid])

Taxes/Economic Impacts

- IMpact analysis for PLANning (IMPLAN) input-output model for Suffolk County
- U.S. Census data and Regional Economic Models, Inc.
- STR (hotel/hospitality data analytics and market research)
- Stony Brook University Strategic Plan

Land Use and Open Space Preservation

- Available and relevant Town zoning codes, maps, and planning documents
- Site and area inspections
- Cleaner Greener Long Island Regional Sustainability Plan, May 2013

Air Quality

- Traffic data (collected and analyzed as part of the Transportation and Parking Study)
- U.S. Environmental Protection Agency National Ambient Air Quality Standards (NAAQS)
- NYSDEC Designation Recommendations for the 2015 Ozone NAAQS, High Ozone Values During 2017, 8-Hour Averages, and 2016 High Ozone Values data table
- New York State Ambient Air Quality Reports (http://www.dec.ny.gov/chemical/8536.html)

Noise

- Traffic data (collected and analyzed as part of the Transportation and Parking Study)
- Town of Smithtown noise ordinance

Visual Impacts

- Local and state cultural databases

- Site and area inspections and photographs
- Stage 1A, Stage 1B, and Stage 2 Archeological Surveys conducted for earlier applications

Historic and Cultural Resources

- Local and state cultural databases
- Site and area inspections and photographs
- Stage 1A, Stage 1B, and Stage 2 Archeological Surveys conducted for earlier applications

Construction Impacts

- Local noise and construction ordinances
- Local and State building codes
- Relevant standards and regulations governing sediment and erosion control
- IMPLAN – economic modelling program inputs

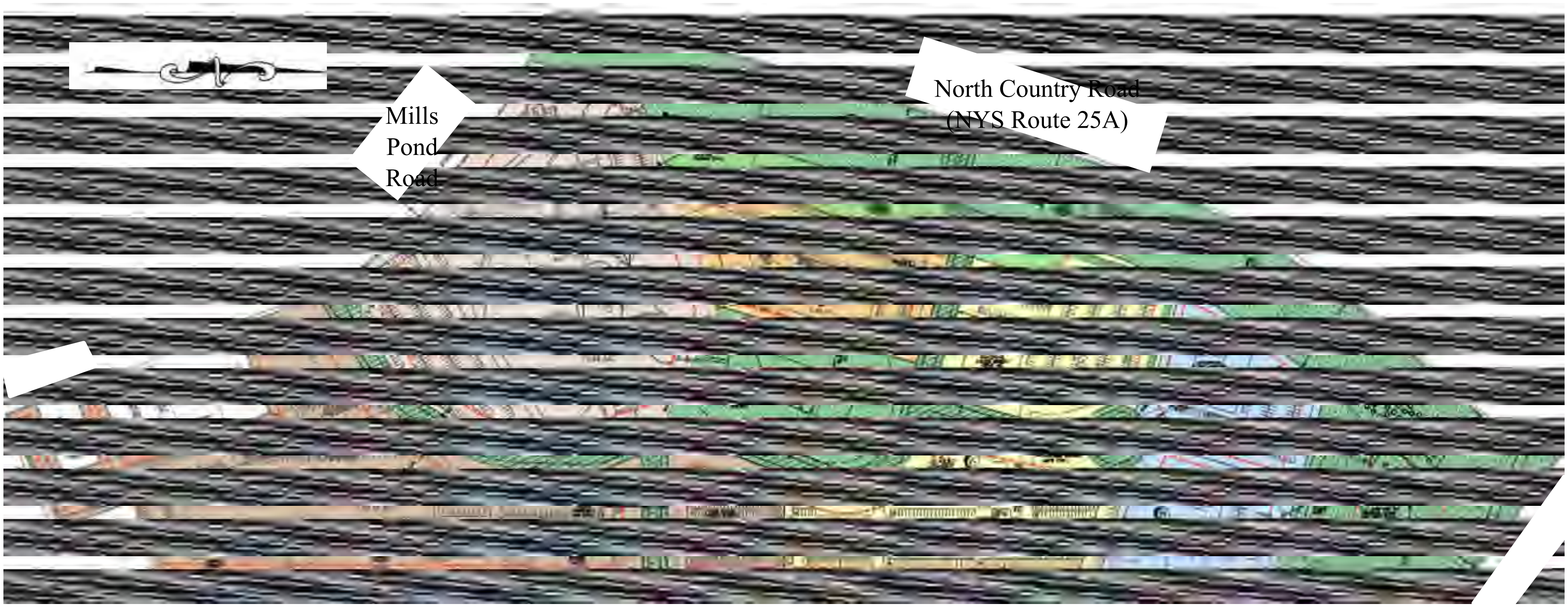
Initial Identification of Mitigation Measures

Where the impact analyses conducted in the DEIS indicate the potential for significant adverse impacts, the DEIS will set forth measures to mitigate those impacts. Such measures will be discussed, by topic, along with the existing environmental setting and the potential environmental impacts. Based on prior and recent studies, certain mitigation measures and improvements have already been identified, as listed below.

- Maintaining the required 200-foot buffer along North Country Road and 50-foot setbacks from all residentially zoned parcels.
- Covering spoil piles, covering the haul vehicle loads that contain fill or cut materials, spraying the site with water during construction, and providing paved vehicle wash-down areas.
- Adequate maintenance of equipment, including proper engine maintenance, adequate tire inflation, and proper maintenance of pollution control devices.
- Running times for fuel-burning equipment would be kept to a minimum, and engines would be properly maintained. Ultra-low sulfur diesel fuel would also be utilized.
- Measures to reduce runoff e.g. construction site stabilization, dust control, sediment traps, and temporary swales. Coverage under NYSDEC SPDES General Permit would be required.
- Revegetation of exposed soils should use native planting of landscape vegetation following construction.
- Though sites are not within invasive species quarantine zones, BMPs required by USDA and NYS Department of Agriculture and Markets would be used if invasive species are discovered.
- Construction activities shall abide by local noise ordinances, with no operation of heavy machinery during early morning or late evening hours or on Sundays/holidays.
- Local ordinances for work around utilities must be followed. Utility connections shall be approved by the affected public service companies and be completed in accordance with their requirements and local building codes.
- Excavated soil and waste materials shall be managed and disposed of in accordance with applicable federal, state, and local regulations. Solid waste haulers shall be required to have an

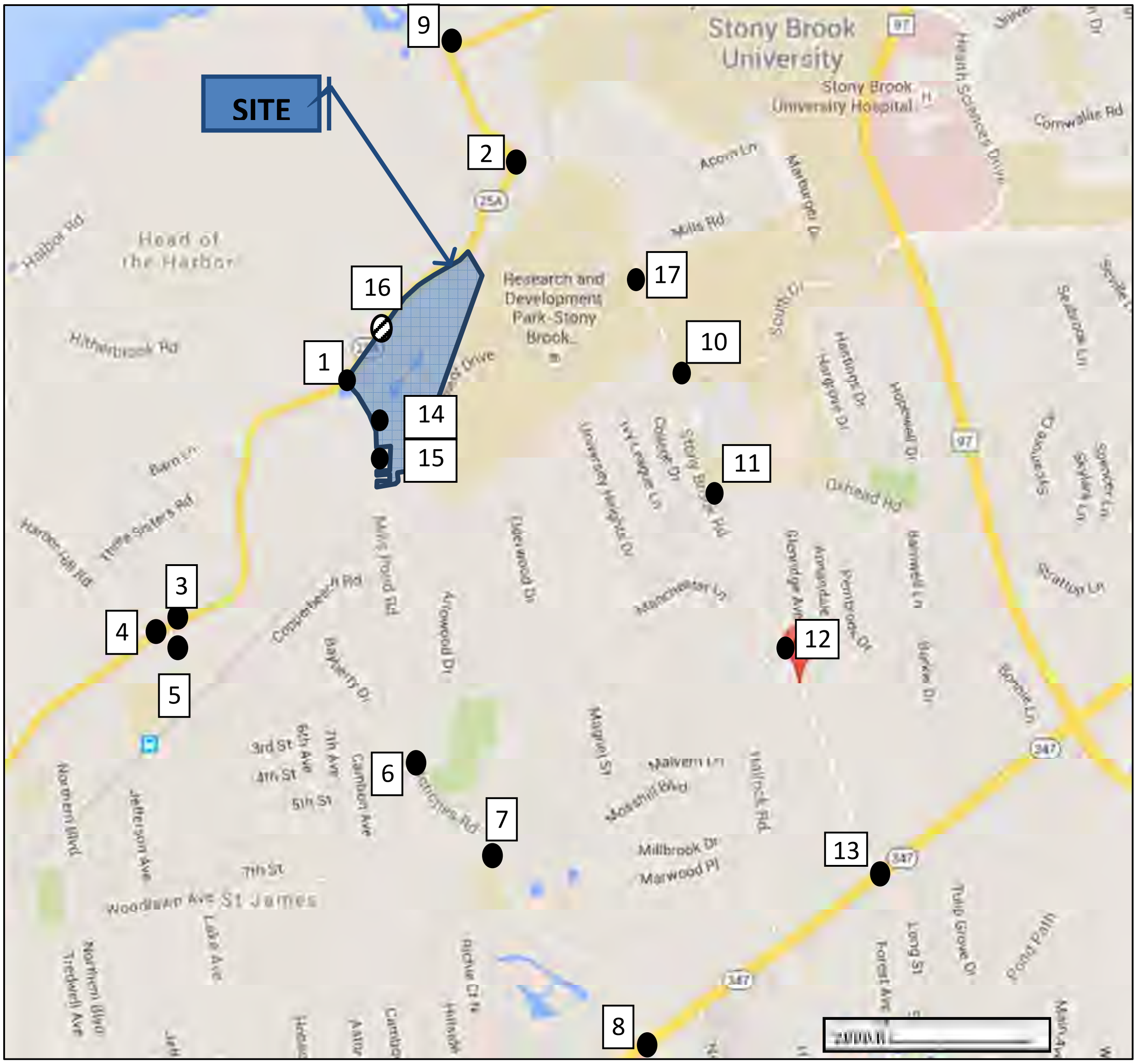
NYSDEC waste hauler permit and all must shall be disposed of or processed at an NYSDEC permitted facility.

Figure 1 – Subdivision Plan Excerpt



Gyrodyne LLC, St. James
Proposed Subdivision
Final Scope for DEIS

Figure 2 – Traffic Study Intersection Map



1. Route 25A at Mills Pond Road
2. Route 25A at Stony Brook Road
3. Route 25A at Lake Avenue
4. Route 25A at Moriches Road
5. Moriches Road at Lake Avenue
6. Moriches Road at Mills Pond Road
7. Moriches Road at Woodlawn Avenue
8. Route 347 at Moriches Road
9. Route 25A at Main Street
10. Stony Brook Road at South Drive
11. Stony Brook Road at Oxhead Road
12. Stony Brook Road at Hallock Road
13. Stony Brook Road at Route 347
14. Mills Pond Road Site Access 1
15. Mills Pond Road Site Access 2
16. Route 25A Site Access (future)
17. Stony Brook Road and Development Drive (north intersection, un-gated)

TOWN OF SMITHTOWN

SUPERVISOR
PATRICK R. VECCHIO

TOWN COUNCIL
THOMAS J. McCARTHY
EDWARD R. WEHRHEIM
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DEPARTMENT OF
ENVIRONMENT &
WATERWAYS

RUSSELL K. BARNETT
DIRECTOR

TOWN OF SMITHTOWN
ENVIRONMENTAL ASSESSMENT FORM

(REVISED MARCH 2009)

INSTRUCTIONS

This form, and four copies, must be submitted along with the application review fee specified in the attached fee schedule. Payment of this fee must be by certified check or money order payable to the Town of Smithtown and must be separate from any other fee due and payable to the Town of Smithtown with regard to your application.

This form is most appropriately completed by a land use professional (i.e. an Environmental Consulting Firm, Landscape Architect, Professional Engineer) and must be submitted with an original notarized signature. This document must be consistent with all other application materials submitted. It must be completed in its entirety and be consistent throughout. If a question is not applicable to your proposal, enter "NA." Wherever necessary attach additional sheets so as to provide complete information.

Following the attached fee schedule is a list of sources of specialized information. In addition, most specialized references identified in this form are available at the Smithtown Library, Main Branch, One North Country Road, Smithtown, New York, 11787, (631) 265-2072

EAF INFORMATION SOURCES:

Endangered, Threatened, Rare Species

Significant Habitat Information Service
New York Natural Heritage Program
Wildlife Resources Center
Delmar, NY 12054

The Nature Conservancy - Long Island Chapter
Uplands Farm
Lawrence Hill Road
Cold Spring Harbor, NY 11724

NYS Dept. of Environmental Conservation
Building #40
SUNY at Stony Brook
Stony Brook, NY 11794

Groundwater

Suffolk County Planning Department
H. Lee Dennison Building
Veterans Memorial Highway
Hauppauge, NY 11788

Suffolk County Water Authority
Administrative Office
Sunrise Highway
Oakdale, NY 11769

Historical Resources

Smithtown Historic Advisory Board
99 West Main Street
Smithtown, NY 11787

Smithtown Historical Society
P.O. Box 69
Smithtown, NY 11787

River Protection - Wild, Scenic and Recreational Rivers

WSRR Program
Division of Lands and Forests
NYS Dept. of Environmental Conservation
Building #40, SUNY at Stony Brook
Stony Brook, NY 11794

Sanitary Systems, Sewage Disposal, Water Use

Bureau of Wastewater Management
Suffolk County Department of Health Services
County Center
Riverhead, NY 11901

Soils, Erosion Control

Suffolk County Soil and Water Conservation District
Peconic Plaza
164 Old Country Road, Route 58
Riverhead, NY 11901

Trip Generation

Institute of Transportation Engineers
525 School Street SW, Suite 410
Washington, D.C. 20024

Topography (U.S.G.S. maps available at Stony Brook University library)

U.S. Geological Survey
Reston, VA

Map Information Office
Branch of Distribution - Eastern Region
U.S. Geological Survey
1200 S. Eads Street
Arlington, VA 22202

Toxics

Suffolk County Department of Health Services
Office of Environmental Engineering and Pollution Control
15 Horseblock Place
Farmingville, NY 11738

Division of Hazardous Wastes
NYS Dept. of Environmental Conservation
Building #40, SUNY at Stony Brook
Stony Brook, NY 11794

TOWN OF SMITHTOWN

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DEPARTMENT OF ENVIRONMENT & WATERWAYS

RUSSELL K. BARNETT
DIRECTOR

ENVIRONMENTAL ASSESSMENT FORM

(REVISED MARCH 2009)

A. GENERAL INFORMATION

NAME OF PROJECT:

Gyrodyne LLC Subdivision Application

(OFFICIAL PROJECT NAME)

NAME AND ADDRESS OF APPLICANT:

Gyrodyne LLC
(NAME)
One Flowerfield - Suite 24
(STREET) *(P.O. BOX)*
St. James, NY, 11780
(CITY) *(STATE)* *(ZIP)*
(631) 584-5400
(AREA CODE) *(TELEPHONE NUMBER)*

NAME AND ADDRESS OF OWNER OF LAND:

Gyrodyne LLC
(NAME)
One Flowerfield - Suite 24
(STREET) *(P.O. BOX)*
St. James, NY, 11780
(CITY) *(STATE)* *(ZIP)*
(631) 584-5400
(AREA CODE) *(TELEPHONE NUMBER)*

LOCATION OF SITE *(INCLUDING DISTANCES TO NEAREST INTERSECTIONS)*:

74.98 ac. located between Mills Pond Road, North Country Road, and the Long Island Rail Road Right-of-Way.

Hamlet of St. James, Town of Smithtown, Suffolk County, New York

APPLICABLE SUFFOLK COUNTY TAX MAP PARCEL NUMBER(S):

District 0800, Section 40, Block 2, Lots 4, 13.3, 13.4, 14, & 15

ADDRESS OF SITE *(IF AVAILABLE)*:

One Flowerfield, St. James, NY, 11780

TYPE OF PROJECT: ☐ CHANGE OF ZONE PETITION ☐ SPECIAL EXCEPTION PETITION
☑ SUBDIVISION APPLICATION ☐ SITE PLAN APPLICATION ☐ OTHER *(EXPLAIN BELOW)*

DETAILED DESCRIPTION OF PROPOSAL OR PROJECT *(INCLUDE NUMBER OF STORIES, SQUARE FOOTAGE OF EACH STORY, NUMBER OF UNITS, ETC.)*: The proposed project includes the subdivision of the 74.98 acre Gyrodyne property into nine (9) lots. The site currently has industrial and commercial uses, including the Flowerfield Celebrations catering hall, on the western sections of the property, and most of the remaining site is vacant. Proposed Lots 1 & 2 would include the existing uses (to remain). Proposed Lot 3 will be land-banked parking to support Lot 1 (existing light industrial). Proposed Lots 4-8 would introduce new uses in accordance with the Town Code and the goals of the CPU, as described below. Proposed Lot 9 would be a common area with roads and a new wastewater treatment plant.

NATURE OF **EXISTING** BUSINESS, FACILITY, OR STRUCTURE, IN DETAIL:

The site is currently home to existing multi-tenant light industry uses (150,959 s.f.) and the Flowerfield Celebrations catering hall.

NATURE OF **PLANNED** BUSINESS, FACILITY, OR STRUCTURE, IN DETAIL:

In addition to retaining the existing uses on site, it is envisioned that the proposed subdivision would be developed in accordance with the goals of the CPU (focused on synergy with Stony Brook Univ. programming, such as hotel and office as well as assisted living for senior citizens). Redevelopment applications would be submitted for each parcel. An example of the potential proposed development is shown on the accompanying plans.

[redacted]

B. SITE DESCRIPTION (PHYSICAL SETTING OF OVERALL PROJECT OR PROPOSAL, BOTH DEVELOPED AND UNDEVELOPED AREAS).

1. PRESENT LAND USE: ☑ INDUSTRIAL ☑ COMMERCIAL ☐ RESIDENTIAL ☐ AGRICULTURAL ☑ VACANT ☐ INSTITUTIONAL

2. ZONING
   a. LIST ALL ZONING CLASSIFICATIONS OF THE SITE: LI (Light Industry)/R-43 (One Family/One Acre)
   b. IF CHANGE OF ZONE PETITION, INDICATE DESIRED ZONING CLASSIFICATION(S): N/A
   c. LIST THE CURRENT ZONING CLASSIFICATIONS OF ALL ADJOINING PARCELS OF LAND:
      NORTH: R-43, A in V. of Head of the Harbor SOUTH: R-43, LI (substation at SE corner)
      EAST: LI WEST: R-43
   d. LIST THE CURRENT USE(S) OF ALL ADJOINING PARCELS OF LAND:
      NORTH: Residential (E/O Shep Jones Lane), Agricultural (to the NW)
      EAST: MTA LIRR, SUNY Research & Development - CEWIT
      SOUTH: Utility Property (LIPA/PSEG-LI substation), Residential
      WEST: Residential (along Mills Pond Road)

3. TOTAL ACREAGE OF SUBJECT PARCEL(S): 74.98 ACRES

APPROXIMATE ACREAGE BY COVER TYPE:

	PRESENTLY	AFTER COMPLETION (Based on estimated full development of the subdivision lots)
WOODED	14.74 ACRES	9.85 ACRES
MEADOW OR GRASSLAND	4.51 ACRES	3.00 ACRES
AGRICULTURAL	ACRES	ACRES
WETLAND *(Freshwater or Tidal as per Article 24, 25 of E.C.L.)*	2.02 ACRES	2.02 ACRES
WATER SURFACE AREA	ACRES	ACRES
UNVEGETATED *(Rock, Earth, Fill)*	ACRES	ACRES
BUILDINGS	4.10 ACRES	7.57 ACRES
ROADS AND OTHER PAVED SURFACES	14.77 ACRES	22.24 ACRES
LANDSCAPED	34.84 ACRES	30.30 ACRES
OTHER *(List Type)*	ACRES	ACRES
TOTAL ACREAGE *(COLUMNS MUST BE EQUAL)*	74.98 ACRES TOTAL	74.98 ACRES TOTAL

4. ARE ANY DANGEROUS OR HAZARDOUS MATERIALS, AS DEFINED BY ARTICLE 12 OF THE SUFFOLK COUNTY SANITARY CODE, CURRENTLY STORED OR USED AT THE SITE? ○ NO ◉ YES*

IF YES, LIST THE MATERIALS, APPROXIMATE AMOUNTS, INTENDED STORAGE PROVISIONS, ETC. *(Attach additional sheets and/or documentation if needed)*

A Phase I Environmental Site Assessment is underway and will be provided to the Town. Industrial Facilities Registry Forms are being collected from individual tenants and will be forwarded.

**An Industrial Facilities Registry Form must be completed and filed with the Dept. of Environment & Waterways*

5. HAS THE SITE EVER BEEN USED FOR THE DISPOSAL OF SOLID OR HAZARDOUS WASTES?
◉ NO ○ YES IF YES, PROVIDE DETAILS *(Use separate sheet if necessary)*

6. ARE THERE ANY DUMPS OR LANDFILLS, ACTIVE OR INACTIVE, WITHIN 1/2 MILE RADIUS OF THE PROJECT?
◉ NO ○ YES IF YES, GIVE LOCATION

7. WHAT ARE THE SOIL TYPES ON THE PROJECT SITE ACCORDING TO THE USDA-SCS *SOIL SURVEY OF SUFFOLK COUNTY, NEW YORK 1975*? CpE (1.7 acres/2.3% of site), HaB (4 acres/5.3% of site), Ra (1 acre/1.3% of site), RdA (10.7 acres/14.3% of site), RdB (19.2 acres/25.7% of site), RhB (31.9 acres/42.6% of site), and SdB (6.3 acres/8.4% of site).

8. **PRESENT** SLOPES AND ELEVATIONS (*Elevations in U.S.G.S. Datum*) (NAVD 88 USGS datum)

a. APPROXIMATE PERCENTAGE OF PROJECT SITE WITH SLOPES OF:

0-10%	10-15%	15-25%	25%+
95.8%	1.3%	1.2%	1.6%

b. PRESENT MAXIMUM SLOPE: >25 %

c. PRESENT AVERAGE SLOPE: 3.5 %

d. PRESENT MAXIMUM SITE ELEVATION: 172 FEET

e. PRESENT AVERAGE SITE ELEVATION: 154 FEET

f. PRESENT MINIMUM SITE ELEVATION: 118 FEET

9. ARE THERE ANY UNIQUE OR UNUSUAL LANDFORMS ON THE PROJECT SITE?
(i.e. cliffs, dunes, kettle holes, eskers, moraine, outwash channels, other geological formations)

(●) NO ( ) YES IF YES, EXPLAIN

10. WHAT IS THE GROUNDWATER MANAGEMENT ZONE ACCORDING TO THE SUFFOLK COUNTY "208 STUDY"?

( ) ZONE I (●) ZONE VIII ( ) BORDERING ZONE I AND ZONE VIII

11. WHAT IS THE MINIMUM DEPTH TO THE WATER TABLE ON THE SITE? approx. 100 FEET

12. ARE THERE ANY PERCHED WATER BODIES PRESENT ON THE SITE?

(●) NO ( ) YES IF YES, EXPLAIN

13. ARE THERE ANY STREAMS, LAKES, PONDS, OR WETLAND AREAS WITHIN OR ADJACENT TO THE PROJECT SITE? ( ) NO (●) YES IF YES, EXPLAIN NYS DEC Class 2 Wetland: SJ-6
Approximately two (2) acres in size.

14. HOW FAR IS THE PROJECT SITE FROM THE NEAREST BODY OF SURFACE WATER? 0 feet (on-site)

15. DOES THE PROJECT SITE LIE WITHIN A 1/2 MILE OF THE NISSEQUOGUE RIVER?

(●) NO ( ) YES

16. IS THE PROJECT OR ANY PORTION OF THE PROJECT SITE LOCATED IN THE 100 YEAR FLOODPLAIN?

(•) NO ( ) YES IF YES, EXPLAIN

17. IS THE PROJECT OR ANY PORTION OF THE PROJECT SITE LOCATED WITHIN AN AREA REGULATED BY THE NEW YORK STATE COASTAL EROSION HAZARD ACT? (•) NO ( ) YES

IF YES, EXPLAIN

18. DOES THE PROJECT SITE OFFER OR INCLUDE SCENIC VIEWS OR VISTAS KNOWN TO BE IMPORTANT TO THE COMMUNITY? ( ) NO (•) YES

IF YES, EXPLAIN 200-foot buffer along Route 25A to remain to preserve scenic view along roadway; beyond 200 feet, view will change to include new structures

19. IS THE PROJECT SITE PRESENTLY USED BY THE COMMUNITY OR NEIGHBORHOOD AS AN OPEN SPACE OR RECREATIONAL AREA **WHETHER AUTHORIZED OR NOT?** (•) NO ( ) YES

IF YES, EXPLAIN

20. DOES THE PROJECT SITE ENCOMPASS OR BORDER ON ANY PUBLIC TRAILS, OPEN SPACE, PARKLAND, OR RECREATIONAL AREA USED BY THE COMMUNITY? (•) NO ( ) YES

IF YES, EXPLAIN

21. DOES THE PROJECT SITE CONTAIN ANY SPECIES OF PLANT OR ANIMAL LIFE IDENTIFIED AS **RARE, THREATENED, ENDANGERED, OR OF SPECIAL CONCERN** AT THE STATE OR FEDERAL LEVEL?

(•) NO ( ) YES ACCORDING TO site inspections by Land Use Ecological Services (May 2017)

IF YES, IDENTIFY EACH SPECIES

22. IS THE PROJECT SITE ADJACENT TO, OR PART OF, A SIGNIFICANT FISH AND WILDLIFE HABITAT AREA AS IDENTIFIED IN THE TOWN OF SMITHTOWN LOCAL WATERFRONT REVITALIZATION PLAN?

(•) NO ( ) YES

23. DOES THE PROJECT SITE CONTAIN OR LIE CONTIGUOUS TO A BUILDING OR SITE LISTED ON THE NATIONAL REGISTER OF HISTORIC PLACES, THE 1980 TOWN OF SMITHTOWN HISTORIC SITES INVENTORY, OR WITHIN AN HISTORIC DISTRICT OF THE TOWN OR COUNTY? ○ NO ◉ YES

IF YES,

a. NAME OF HISTORIC BUILDING OR SITE Mills Pond Historic District

b. LOCATION Northwest corner of the site

C. PROJECT DESCRIPTION

1. PHYSICAL DIMENSIONS AND SCALE OF PROJECT *(FILL IN DIMENSIONS AS APPROPRIATE)*

a. TOTAL CONTIGUOUS ACREAGE OWNED BY PROJECT SPONSOR 74.98 ACRES

b. PROJECT ACREAGE PRESENTLY DEVELOPED +/- 25.18 ACRES;

PLANNED FOR DEVELOPMENT +/- 31.44 ACRES

PROJECT ACREAGE TO REMAIN UNDEVELOPED +/- 18.36 ACRES

PROJECT ACREAGE TO BE PERMANENTLY (LEGALLY) PRESERVED 0 ACRES

IF APPLICABLE, EXPLAIN METHOD (NA)

c. LENGTH OF PROJECT, IN MILES (NA) MILES *(IF APPROPRIATE)*

d. IF PROJECT IS AN EXPANSION OF AN EXISTING BUILDING OR FACILITY, INDICATE PERCENT EXPANSION (NA) %

e. **PRESENT** BUILDING OR FACILITY TOTAL SQUARE FOOTAGE 186,686 SQ.FT.;

PLANNED TOTAL SQUARE FOOTAGE 584,346 SQ.FT. *(i.e. Gross Floor Area)*

f. TOTAL HEIGHT OF TALLEST PROPOSED STRUCTURE: 35 FEET

MAXIMUM HEIGHT ALLOWED ACCORDING TO THE SMITHTOWN TOWN CODE: 35 FEET

TOTAL HEIGHT OF TALLEST STRUCTURE WITHIN 1/4 MILE RADIUS OF PROJECT SITE: +/- 30-35 FEET

g. IF RESIDENTIAL, NUMBER AND TYPE OF HOUSING UNITS: (NA)

	R-43	R-21	R-15	R-10	RM-7	RM-GA	R-6	OTHER ______
PRESENTLY								
ULTIMATELY								

IF ATTACHED UNITS *(condominiums, townhouses, garden apartments, etc.)* INDICATE # OF BEDROOM UNITS:

	ONE-BEDROOM	TWO-BEDROOM	THREE-BEDROOM	OTHER Assisted Living
PRESENTLY				0
ULTIMATELY				220 units

h. NUMBER OF **ON-STREET** PARKING SPACES EXISTING 0 ; PLANNED 0

NUMBER OF **ON-SITE** PARKING SPACES EXISTING 925 ; PLANNED 2,002 paved, 322 land-banked

i. MAXIMUM VEHICULAR TRIPS PRESENTLY GENERATED PER HOUR 200 during catering hall events

UPON COMPLETION OF PROJECT 497 external *(According to the Institute of Transportation Engineers Trip Generation Manual)* Updated to use new 10th Edition issued Sept. 2017

j. PERCENT OF PROJECT SITE COVERED WITH IMPERVIOUS SURFACES (buildings, paving):

EXISTING 25 % PLANNED 40 % 25% prior to construction of new buildings and parking lots; 40% including new buildings and parking on Lots 3, 4, 5, 6, 7, 8, & 9

2. SITE ALTERATION

a. PLANNED SLOPES AND ELEVATIONS *(ALL ELEVATIONS TO BE IN U.S.G.S. DATUM)*

- PLANNED AVERAGE SLOPE: 3.5 %
- PLANNED MAXIMUM SLOPE: >25% %
- PLANNED MAXIMUM ELEVATION: 172 FEET
- PLANNED AVERAGE ELEVATION: 154 FEET
- PLANNED MINIMUM ELEVATION: 118 FEET

b. HOW MUCH NATURAL MATERIAL *(i.e. rock, earth, etc.)* WILL BE REMOVED FROM THE SITE?

0 TONS; 0 CUBIC YARDS

c. HOW MUCH MATERIAL *(i.e. rock, earth, etc.)* WILL BE DEPOSITED ON THIS SITE AS FILL?

0 TONS; 0 CUBIC YARDS

IDENTIFY TYPE OF MATERIAL Soil will be moved on-site so there will be a balance of cut & fill

d. HOW MANY ACRES OF EXISTING VEGETATION *(i.e. trees, shrubs, ground covers, etc.)* WILL BE REMOVED FROM THE SITE? +/- 6.4 ACRES

e. WILL ANY MATURE TREES (OVER TWELVE INCHES IN DIAMETER) OR OTHER LOCALLY IMPORTANT VEGETATION OR TREES BE REMOVED BY THIS PROJECT? ○ NO ◉ YES

IF YES, EXPLAIN

The specific trees to be removed are unknown at this time; however, trees will be removed to build the roads and buildings.

f. DESCRIBE PLANS FOR RE-VEGETATION TO REPLACE THAT REMOVED DURING CONSTRUCTION.
Common areas that are disturbed will be landscaped.

g. IF THE SITE IS SUBJECT TO EROSION OR HAS THE POTENTIAL FOR AN EROSION PROBLEM UPON COMPLETION OF THE PROJECT, HOW WILL YOU MINIMIZE THE POTENTIAL FOR THIS IMPACT? *(i.e. landscaping, retaining walls, retention of natural vegetation, etc.)*
Revegetation of slopes/disturbed areas will be maintained to minimize erosion. The subdivision layout incorporates landbanking and shared parking to maintain as much natural vegetation as possible. Slopes will be gentle enough to avoid the need for new retaining walls. Compliance with NY State Erosion and Sediment Control guidelines.

h. WHAT PLANS DO YOU HAVE TO CONTROL EROSION DURING CONSTRUCTION? *(i.e. perimeter hay bales, mulching, etc.)*
Construction will be subject to a SWPPP - compliance with NY State Erosion and Sediment Control guidelines. Controlled construction. The applicant anticipates utilizing silt fencing, a gravel/stone wash-down area near the construction entrance/exit, and inlet protection.

i. WILL SURFACE AREA OF EXISTING LAKES, PONDS, STREAMS, BAYS OR OTHER SURFACE WATERWAYS OR WETLANDS BE INCREASED OR DECREASED BY THIS PROJECT?
◉ NO ○ YES
IF YES, EXPLAIN

j. WILL THERE BE A DISCHARGE INTO A BODY OF SURFACE WATER? ◉ NO ○ YES

k. WHAT WILL BE THE METHOD OF HANDLING STORMWATER RUNOFF?
A system of drywells will capture stormwater on the newly developed lots (3 to 9) and underground pipes will convey the water to a new Drainage Reserve Area (DRA) on the north portion of the site, within the Route 25A buffer. After conversation with the Town Engineer, Mark Riley, P.E., roadway drainage runoff is managed within a bioswale adjacent to each pavement edge, occasionally picked up into a series of drywell inlets, with an ultimate overflow to defined DRAs which naturally recharge any excess runoff from the bioswales back to groundwater. Preliminary drainage plans have been submitted to the Town Engineer for initial comment on the concept.

l. WILL DEMOLITION OF EXISTING STRUCTURES OCCUR PRIOR TO OR DURING CONSTRUCTION?
◉ NO ○ YES IF YES, EXPLAIN

3. IF SINGLE PHASE PROJECT: ANTICIPATED PERIOD OF CONSTRUCTION ______ MONTHS *(including demolition)*

IF MULTI-PHASED PROJECT:
a. TOTAL NUMBER OF PHASES ANTICIPATED Up to 6 (individual lots)
b. ANTICIPATED DATE OF COMMENCEMENT OF PHASE ONE *(including demolition)* 2018
c. APPROXIMATE COMPLETION DATE OF FINAL PHASE 2020
d. IS PHASE 2 (3, 4, 5, ETC.) FINANCIALLY DEPENDENT ON PREVIOUS PHASE? ☑ NO ☐ YES IF YES, EXPLAIN

4. IS WATER SUPPLY: ◉ PUBLIC ☐ PRIVATE

a. IF WATER SUPPLY IS FROM WELLS INDICATE PUMPING CAPACITY (NA) GALS/MIN.

- LOCATION OF WELL(S):
- DATE LAST TIME WELL WATER WAS TESTED AND BY WHOM

RESULTS

b. DISCUSS PROPOSED WATER CONSERVATION MEASURES, IF ANY Potential conservation could include use of native plants to minimize irrigation needs, use of low-flow fixtures.

c. TOTAL WASTE WATER GENERATION PER DAY 88,531 GALS/DAY *(According to Suffolk County Department of Health Services Design Flow Standards - Suffolk County Sanitary Code Article VI)*

5. IS SURFACE OR SUBSURFACE LIQUID WASTE DISPOSAL INVOLVED? ○ NO ◉ YES

IF YES, INDICATE TYPE OF WASTE (SEWAGE, INDUSTRIAL, ETC.)
Sewage

a. IF SURFACE DISPOSAL, PROVIDE DETAIL:

b. INDICATE TYPE OF SEWAGE DISPOSAL SYSTEM PROPOSED:

☐ SEPTIC TANK AND POOL(S)
☑ CONSTRUCTION OF A NEW SEWAGE TREATMENT PLANT
☐ DENITRIFICATION SYSTEM
☐ CONNECTION TO EXISTING SEWAGE TREATMENT PLANT (IDENTIFY PLANT ________)

6. DOES PROJECT INVOLVE THE DISPOSAL OF SOLID WASTE? ○ NO ◉ YES

IF YES, a. ANTICIPATED WASTE GENERATION RATE 62.3 tons per month more than existing

b. WILL AN EXISTING SOLID WASTE DISPOSAL FACILITY BE USED? ○ NO ◉ YES

IF YES, GIVE NAME AND LOCATION
Town of Smithtown facility

7. WILL THE PROJECT PRODUCE ANY WASTES **OTHER THAN** SEWAGE OR RESIDENTIAL GARBAGE?

(i.e. industrial solid wastes, liquids, medical wastes, or other) ○ NO ◉ YES

IF YES, EXPLAIN AND DESCRIBE, INCLUDING METHOD OF DISPOSAL AND IDENTIFICATION OF WASTE HAULERS
Should the medical offices have medical waste, disposal would follow State guidelines as directed by the NY State Department of Health (DOH) and Department of Environmental Conservation (DEC)

8. UPON COMPLETION OF THE PROJECT AND/OR UPON COMMENCEMENT OF PROPOSED ACTIVITY, WILL ANY CHANGE IN THE USE, STORAGE, OR HANDLING OF DANGEROUS OR HAZARDOUS MATERIALS AS DEFINED BY ARTICLE 12 OF THE SUFFOLK COUNTY SANITARY CODE OCCUR AT THE SITE OR IN THE FACILITY? (●) NO ( ) YES*

IF YES, LIST THE MATERIALS, APPROXIMATE AMOUNTS, INTENDED STORAGE PROVISIONS, ETC.
(Attach additional sheets and/or documentation if needed)

No expected changes to existing light industrial uses or to existing catering hall.

Minimal anticipated changes in proposed Lots 3 through 9.

**An Industrial Facilities Registry Form must be completed and filed with the Dept. of Environment and Waterways*

9. WILL PROJECT USE HERBICIDES OR PESTICIDES? ( ) NO (●) YES Basic landscaping maintenance, no herbicides/pesticides to be used near on-site wetlands

10. WILL PROJECT ROUTINELY PRODUCE ODORS? (●) NO ( ) YES

IF YES, EXPLAIN

11. WILL PROJECT PRODUCE OPERATING NOISE EXCEEDING THE LOCAL AMBIENT NOISE LEVEL?
☑ NO ☐ YES IF YES, BY HOW MUCH AND WHY

12. WILL PROJECT RESULT IN AN INCREASE IN ENERGY USE? ( ) NO (●) YES

IF YES, INDICATE TYPE(S)

Lighting, power, and heating-air conditioning-ventilation for the new buildings

---

D. SOCIO-ECONOMIC FACTORS

1. IS THE PROPOSED PROJECT *(NOT THE SITE)* CONSISTENT WITH NEIGHBORING USES?
( ) NO (●) YES

EXPLAIN EITHER ANSWER IN DETAIL

Medical/technical office complements Stony Brook University & SBUMC; Hotel complements caterer; the Town CPU says more assisted living (senior housing options) is needed

2. NUMBER OF JOBS GENERATED: +/- 1,500 DURING CONSTRUCTION; (full development)
+/- 1,300 AFTER PROJECT IS COMPLETE (full development)

3. NUMBER OF JOBS ELIMINATED BY THIS PROJECT: 0

4. WILL THIS PROJECT REQUIRE THE RELOCATION OF ANY PEOPLE, PROJECTS OR FACILITIES?

☑ NO ☐ YES IF YES, EXPLAIN ______

5. GIVE ESTIMATE OF THE TOTAL COST OF THE PROPOSED PROJECT $ +/- 150 million

6. IF RESIDENTIAL DWELLING(S), WHAT IS THE ANTICIPATED SELLING PRICE? $ NA

7. IF RESIDENTIAL RENTAL UNITS, WHAT IS THE ANTICIPATED RENTAL PRICE? $ NA

METHOD OF RENT CONTROL OR RENT STABILIZATION, IF ANY NA

8. DESCRIBE ANY ENVIRONMENTAL, ECONOMIC, AND/OR SOCIAL **BENEFITS** WHICH WOULD BE REALIZED FROM THE PROPOSED PROJECT OR ACTION *(Attach additional sheets if necessary).*

Economic benefits include short- & long-term job creation for more than 1,300 FTEs, increased tax dollars (especially school taxes) with no new school-aged children added to the local school district, and complementary uses to have synergy with Stony Brook University, SBU Medical Center, Stony Brook R&D, and the Flowerfield catering hall. Transportation benefits include new traffic signals and new left turn storage lanes that will mitigate site-generated traffic and address existing congestion. A new on-site Wastewater Treatment Plant (WWTP) will accommodate existing and new sewage, whereas the existing site is not sewered.

9. DISCUSS ANY **ADVERSE** IMPACTS (e.g. traffic, loss of open space, water use, wastewater generation, solid waste, noise, etc.) ASSOCIATED WITH THE PROPOSAL AND THE **MITIGATION MEASURES** (e.g. landscaping with native plantings and/or plantings designed to support wildlife, dedication of land, deed covenants to protect environmentally sensitive features, clustering of structures to preserve open space, landbanking of required parking, provision of buffer zones between construction activities and environmentally sensitive features, etc.) WHICH CAN BE TAKEN TO MINIMIZE OR ELIMINATE THEM *(Attach additional sheets if necessary).*

Traffic impacts at six intersections will be mitigated with two new signals, signal and pavement marking modifications, and perhaps minor turn lane widening. Landbanked parking, proposed trails, and the retention of the required 200-foot buffer from Route 25A will maximize green space and avoid visual impacts. Construction work will abide by a SWPPP that will require Erosion and Sediment Control practices, and it will abide by Town noise ordinance requirements to avoid noise impacts to adjacent properties.

E. NECESSARY PERMITS

1. ARE ANY FEDERAL PERMITS REQUIRED? (●) NO ( ) YES IF YES, EXPLAIN

2. ARE ANY STATE PERMITS REQUIRED? ( ) NO (●) YES IF YES, EXPLAIN
NYSDOT Highway Work Permit, NYSDEC SWPPP and General Permit coverage and Freshwater Wetlands permits. Additionally, no LIRR grade crossing modifications are anticipated, but if they are required, the Applicant will need MTA LIRR permits.

3. DOES THE PROJECT INVOLVE STATE OR FEDERAL FUNDING OR FINANCING? (●) NO ( ) YES
IF YES, EXPLAIN

4. DOES THE PROJECT INVOLVE ANY STATE OR FEDERAL LICENSING? (●) NO ( ) YES
IF YES, a. EXPLAIN
b. DOES THE APPLICANT POSSESS THE REQUIRED LICENSE? ( ) NO ( ) YES

5. ARE ANY VARIANCES OR SPECIAL EXCEPTIONS REQUIRED FOR THIS PROJECT?
( ) NO (●) YES IF YES, EXPLAIN Potential land uses include assisted living and hotel, which would require a Special Exception at the time of site plan application. No variances are required.

6. LOCAL AND REGIONAL APPROVALS: *(LIST ALL APPROVALS NECESSARY FOR THIS PROJECT)*

	(Y/N)	(Type)	(Application Date)	(Date Approved)
Town Board of Site Plan Review	Y	Site Plan		
Town Board	Y	Sign, Tree Clearing		
Town Planning Board	Y	Subdivision	June 21, 2017	
Town Board of Zoning Appeals	N			
Suffolk County Health Department	Y	Subdivision, Water, On-Site WWTP		
County Planning Board	N			
State Agencies	Y	DOT Highway Work Permit; DEC SWPPP, SPDES, General Permit for WWTP, Freshwater Wetlands if required		
County Agencies	Y	SCPC Subdivision referral		
Other Agencies	Y	St. James Water District (connect to public water); possible MTA/LIRR grade crossing modifications		

F. INFORMATIONAL DETAILS

ATTACH ANY ADDITIONAL INFORMATION WHICH YOU FEEL IS NEEDED OR INFORMATION WHICH MIGHT CLARIFY YOUR PROPOSED PROJECT.

I, Rebecca Goldberg, P.E., LEED AP, THE PREPARER OF THIS ENVIRONMENTAL ASSESSMENT FORM FOR THE PROJECT KNOWN AS DO HEREBY SWEAR THAT I RESIDE AT c/o Cameron Engineering, 177 Crossways Park Drive Woodbury NY 11797 AND FURTHER THAT THE INFORMATION SET FORTH IN THIS DOCUMENT IS CORRECT AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

I, Rebecca Goldberg, P.E., LEED AP, FURTHER ACKNOWLEDGE THAT IT IS A CRIME, PUNISHABLE AS A CLASS A MISDEMEANOR PURSUANT TO SECTION 210.45 OF THE PENAL LAW OF THE LAWS OF THE STATE OF NEW YORK, FOR A PERSON, IN AND BY A WRITTEN INSTRUMENT, TO KNOWINGLY MAKE A FALSE STATEMENT, OR TO MAKE A STATEMENT WHICH SUCH PERSON DOES NOT BELIEVE TO BE TRUE.

SWORN UNDER PENALTY OF PERJURY
THIS 1st DAY OF December, 20 17

Rebecca Goldberg
Preparer

Civil Engineer
Title (Relationship to Project)

SUBSCRIBED AND SWORN TO BEFORE ME
THIS 1 DAY OF December, 20 17

Jill Ann Witcoski
Notary Public

JILL ANN WITCOSKI
Notary Public, State of New York
Qualified in Nassau County
Reg. No. 01WI6357883
My Commission Expires May 1, 20 21

TOWN OF SMITHTOWN

PLANNING and COMMUNITY DEVELOPMENT DEPARTMENT
99 WEST MAIN STREET • P.O. BOX 575 • SMITHTOWN, NEW YORK 11787
smithtownplanning@tosgov.com • www.smithtownny.gov • 631-360-7540

September 22, 2016

Hon. Patrick R. Vecchio, Supervisor
Members of the Town Board
99 West Main St.
Smithtown, NY 11787

Re: Comprehensive Plan Update

The Planning Board at their regularly scheduled meeting of September 21, 2016 adopted the following resolution:

BE IT RESOLVED that the Planning Board makes the following conclusions and recommendations to the Town Board relative to the Draft of the Comprehensive Plan Update:

1. Overall the draft plan would result in much more desirable Town than would the existing plan. The draft provides for a balance of protecting existing character of the Town, preserving the environment, providing goods and services, improving public health, improving government efficiency and sustainability, protecting property values, increasing employment, and improving problem areas.

2. We appreciate that no single plan will be ideal to everyone, but this draft generally achieves a balance of diverse interests.

3. It is not good planning to try to reconcile details at this stage. Professional planning experts state that a comprehensive plan is supposed to be general, but should layout the basic vision that a community seeks. The details will be addressed as time goes forward, and the plan will be used as a guide for methods and considerations for resolving the details.

4. The most significant conclusions from public input include:

   - *The medium density suburban character of the Tow should not be changed.*
   - *The visual quality of the residential neighborhoods is high.*
   - *The visual quality of many business districts and the Old Northport Road area are low.*
   - *The land uses that should be encouraged most: open space, 1-family homes, restaurants, stores, and agriculture.*
   - *The land uses that should be discouraged most: commercial parking in residential areas, heavy industry, outdoor storage, and apartments over 2 stories.*
   - *Park facilities in most demand: nature preserves, walking and biking trails, concert venues, kayak launches.*
   - *Park facilities in least demand: golf courses, hockey rinks, skateboard parks, basketball courts, and boating facilities.*

- *More areas should have sewers, especially high groundwater areas and downtown business districts.*
- *There is opposition in the Old Northport Road area to heavy industrial uses.*
- *Residents want to be able to walk to stores and community facilities.*

Note: Boxes added by applicant to indicate relevant items.

5. The public opinion survey suggests that the draft plan is largely consistent with the public's goal. The written comments are diverse, but suggest that some parts of the draft should be improved. Based on the information available at the present time, the Planning Board recommends that the plan be modified as described below.

Land Use

1. The amount of land used in the Old Northport Road corridor for heavy industry should be reduced.
2. The amount of land used for parkland, agriculture, and renewable energy should be increased
3. There should be some more flexibility for development of the Gyrodyne property. The essence of any development there should:
   a. Support Stony Brook University, a major economic engine in the region
   b. Provide a large buffer to maintain the natural and historic corridors
   c. Limit overall density to be less intensive than if the property were to be fully built out in compliance with existing LI zoning
4. Rather than creating downtowns in Commack, Hauppauge, and Nesconset, the existing neighborhood retail areas should be enhanced, but not changed into downtowns that were developed before the advent of motor vehicles.
5. The visual quality of the downtowns should be improved.
6. The height of multi-family buildings should generally be limited to 2 stories.

Transportation

1. Pedestrian and bicycle circulation should be a high priority.
2. An LIRR yard should not be located in the Town unless the proposed yard would create less environmental and community impacts than uses permitted on the proposed site.
3. Paratransit service should be provided between the railroad stations and nearby retail centers.

Community Facilities

1. The plan should include components to reduce energy consumption and to increase renewable energy.
2. The parkland along Lake Ronkonkoma should be improved so as to beautify the lake area.
3. The plan should emphasize more trails for hiking and cycling.

Overall

1. The Inventory and Analysis volumes should be updated to either remove recommendations or ensure that the recommendations do not conflict with Volume VIII.

2. The goals and objectives should be modified so as to provide more guidance and to help establish priorities.

Very truly yours,
Conrad A. Chayes, Sr., Chairman

Agnes J Vion

Agnes J. Vion
Clerk to the Board

AM/ajv

Appendix B

Correspondence

- Correspondence to NYSDEC, local police, fire, water, and school districts, PSEG-Long Island, and NYSDOT
  - Organized in reverse date order for each entity
  - Certified Mailing card copies/receipts are provided for entities whose responses are pending

NYSDEC

From: Lewis, Daniel E (DEC) <daniel.lewis@dec.ny.gov>
Sent: Monday, October 22, 2018 2:01 PM
To: Kevin McAndrew <KMcAndrew@cameronengineering.com>
Cc: Porciello, Ryan J (DEC) <Ryan.Porciello@dec.ny.gov>; Knoll, Christina A (DEC) <Christina.Knoll@dec.ny.gov>
Subject: RE: Gyrodyne Flowerfield Property

Kevin, your call out and note for the fww boundary is fine.

I spoke with both Ryan Porciello and Rob Marsh and they were of similar minds. You should try and engineer the development such that the same amount of water would be expected to reach the pond. Since some of that water would now be coming off of impervious surfaces we would expect that the water would be treated in some way before reaching the pond. I imagine that vegetated swales and other similar infrastructure would work.

Some of these design features would be counter to what is expected in the storm water design manual as this is not a standard situation. Your narrative should include information on the water budget for this perched pond and potential impacts to the pond if you were to capture all storm water off of the impervious surfaces in the project.

Let me know if you have any questions.

Daniel Lewis
Biologist, Fish, Wildlife and Marine Resources

New York State Department of Environmental Conservation
50 Circle Road, Stony Brook, NY 11790-3409
P: (631) 444-0278 | F: (631) 444-0272 | daniel.lewis@dec.ny.gov
www.dec.ny.gov | |

From: Kevin McAndrew [mailto:KMcAndrew@cameronengineering.com]
Sent: Monday, October 22, 2018 1:52 PM
To: Lewis, Daniel E (DEC) <daniel.lewis@dec.ny.gov>
Subject: Gyrodyne Flowerfield Property

Dan,
Thank you for our field meeting last week. Wanted to follow-up regarding the storm water management discussion we had. Specifically, whether DEC would be receptive to directing post-development run-off (treated with roadside vegetated swales or from vegetated drainage reserve areas) to the pond in an effort to match pre-development runoff area. Let me know if any additional information is needed from our office to facilitate this issue.

The remainder of the items we discussed from the proposed trail alignment, “cut-ins” to the waters edge, overlook pier/viewing platform, 1 to 1 re-vegetation match if existing vegetation is cleared/disturbed, etc. all was straight forward.

We will note the “toe of slope/water edge” as the limit of DEC regulated freshwater wetland per Daniel Lewis, NYSDEC field visit – 10/17/18. Let me know that this is acceptable.
Kevin

Kevin M. McAndrew, Partner

CAMERON ENGINEERING & ASSOCIATES, LLP

177 Crossways Park Drive ▪ Woodbury, NY 11797
Direct Phone: 516.224.5265 ▪ *Fax:* 516.827.4920

1411 Broadway, Suite 610 ▪ New York, NY 10018
Phone: 212.324.4000 ▪ *Fax:* 646.216.2001

303 Old Tarrytown Road, 1st Floor ▪ White Plains, NY 10603
Phone: 914.721.8300 ▪ *Fax: 914-997-0957*

▪ *Mechanical & Electrical Engineering* ▪ *Security & CCTV Engineering*
▪ *Civil Engineering* ▪ *Site Development & Landscape Architecture*
▪ *Planning, GIS & Environmental Engineering* ▪ *Water & Wastewater Engineering*
▪ *Traffic & Transportation Engineering* ▪ *Structural Engineering* ▪ *Construction Management*

St. James Fire District

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Ryan Davis, Chief
St. James Fire District
221 Jefferson Ave
St James, NY 11780

9590 9402 4372 8190 3000 78

2. Article Number (Transfer from service label)

7015 1520 0001 5648 0265

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☒ Agent ☐ Addressee

B. Received by (Printed Name) K Latty C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☐ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
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☐ Insured Mail Restricted Delivery
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☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

CAMERON ENGINEERING & ASSOCIATES, L.L.P.

177 Crossways Park Drive, Woodbury, NY 11797, (516) 827-4900
45 West 36th Street, Third Floor, New York, NY 10018, (212) 324-4000
303 Old Tarrytown Road, 1st Floor, White Plains, NY 10603, (914) 721-8300

Active Member of ACEC New York

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John D. Cameron, Jr., P.E.

Senior Partner
Joseph R. Amato, P.E.

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Nicholas A. Kumbatovic, P.E.
Kevin M. McAndrew, R.L.A.
Michael J. Hults, P.E.

Senior Associates
Glenn DeSimone, P.E., CPE
Andrew L. Narus, P.E.

Associates
Michael A. De Giglio, R.L.A.
Richard J. Zapolski, Jr., P.E.

May 23, 2017
Revised June 20, 2018 &
January 18, 2019

Ryan Davis, Chief
St. James Fire District
221 Jefferson Ave.
St. James, NY 11780-2901

Re: Gyrodyne LLC property: east side of Mills Pond Road between North Country Road and LIRR
Proposed Subdivision
Request for Resource Availability (Fire Protection/EMS)
CE 338 A

Dear Chief Davis:

Cameron Engineering & Associates, LLP is conducting a study of the potential impacts of a proposed subdivision at the Gyrodyne LLC property on the southeast corner of Mills Pond Road and North Country Road/Route 25A. This letter is to request fire protection and EMS availability from the St. James Fire District for the above referenced proposed project, a subdivision into nine (9) lots. The May 2017 letter referenced eight lots; the ninth lot would be used for parking.

Specifically, the proposed subdivision would retain the existing on-site uses (four light industrial structures and the Flowerfield catering hall) and could add 130,000 s.f. of medical or general offices, 220 assisted living units, a 150-room hotel with a 500-seat conference center, and a sewage treatment plant (see attached Location Map and Preliminary Subdivision Plan). The subdivision is in the preliminary planning stages, so the eventual land use mix and sizes may change somewhat.

Please advise regarding your department's ability to properly serve the proposed facilities on the site.

A Preliminary Subdivision Plan and a Location Map are attached for your reference. Please provide us with the requested information at your earliest possible convenience. Should you have any questions or require additional information, please feel free to contact me at (516) 224-5227. Thank you for your assistance with this matter.

Very truly yours,

David J. Tepper
Planner

Enclosures:
Aerial/Location Map
Preliminary Subdivision Map

K:\C300-361\CE 338A\0 - Flowerfield Subdivision\DEIS\Appendix B - Correspondence\Community Service Letters\L 01-18-19 Fire Revised.docx


NORTH COUNTRY ROAD (NYS ROUTE 25A)
LIRR
FLOWERFIELD
CELEBRATIONS
CATERING HALL
EXISTING LIGHT
INDUSTRIAL
PART. OF STONY
BROOK UNIVERSITY
CEWIT
MILLS POND
ROAD
GYRODYNE, LLC
AERIAL MAP
CAMERON ENGINEERING
& ASSOCIATES, LLP


KEY LOCATION MAP
MEDICAL OFFICE
HOTEL
ASSISTED LIVING
CATERING
LIGHT INDUSTRIAL
ACCESS EASEMENT AREA / LIGHT INDUSTRIAL
COMMON OWNERSHIP AREA / OPEN SPACE
PRIVATE RIGHT OF WAY (R.O.W.) AREA / COMMON OWNERSHIP
OPEN SPACE
OPEN SPACE ON PRIVATE PROPERTY
STP SITE
LANDBANKED PARKING
SETBACK LINE
MIXED USE CAMPUS
DEVELOPMENT PLAN
FOR
GYRODYNE, LLC
TOWN OF SMITHTOWN
SUFFOLK COUNTY, NEW YORK

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Questions/Comments

Return to Forms Section

Note: An asterisk (*) denotes a required field

IF YOU WOULD LIKE A REPLY YOU MUST FILL IN YOUR NAME AND CONTACT INFORMATION.

1) Name*: Rebecca Goldberg

2) Address: 177 Crossways Park Drive
Woodbury NY 11797

3) Phone: 516 224 -5238

4) Email: rgoldberg@cameronengineering.com

5) What is your question or comment? Please describe in detail.*:

Hello,

This is to follow up on a Fire Department service availability letter sent to Chief Springer, regarding the Gyrodyne subdivision at Route 25A-Mills Pond Road.
I would like to email a copy of the letter as well, and am requesting an email address or an online format to share the letter in PDF format.

Please email or call to discuss as you prefer. Thank you very much.
-Rebecca

If you would like to receive an email receipt of this form submission, please enter a valid email address in the field below.

6) Receipt email address: rgoldberg@cameronengineering.com

Submit | Clear Form

Online form submitted June 19, 2018. No email address is provided for Fire Department representatives.

6/19/2018, 1:34 PM

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Thank you for submitting [illegible] has been successfully received [illegible]
[illegible]
[illegible] here [illegible]

Rebecca Goldberg

From:	St. James Fire District Web Site <No-Reply@stjamesfd.org>
Sent:	Tuesday, June 19, 2018 12:09 PM
To:	Rebecca Goldberg
Subject:	Receipt: Form "Questions/Comments" Submission

This is your "Questions/Comments" submission receipt. Your receipt confirmation number is: "2018_06_975230".

Thank you for submitting your question or comment to the St. James Fire District.

Please allow us some time to review your question and or comment and forward it to the correct person.

We will get back to you if required.

Sincerely,

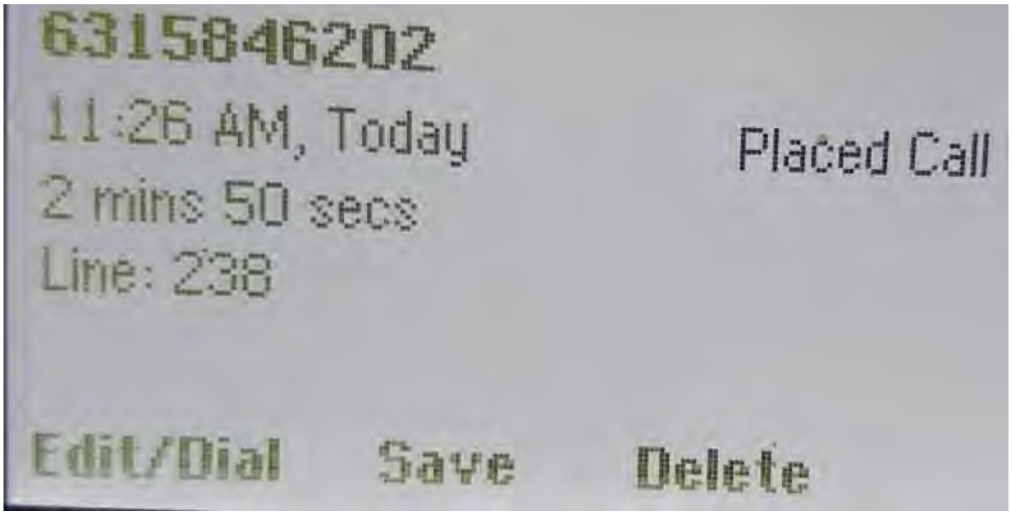
The St. James Fire District.

Submission made by Public on June 19, 2018, 12:08 PM
Your form submission is below:

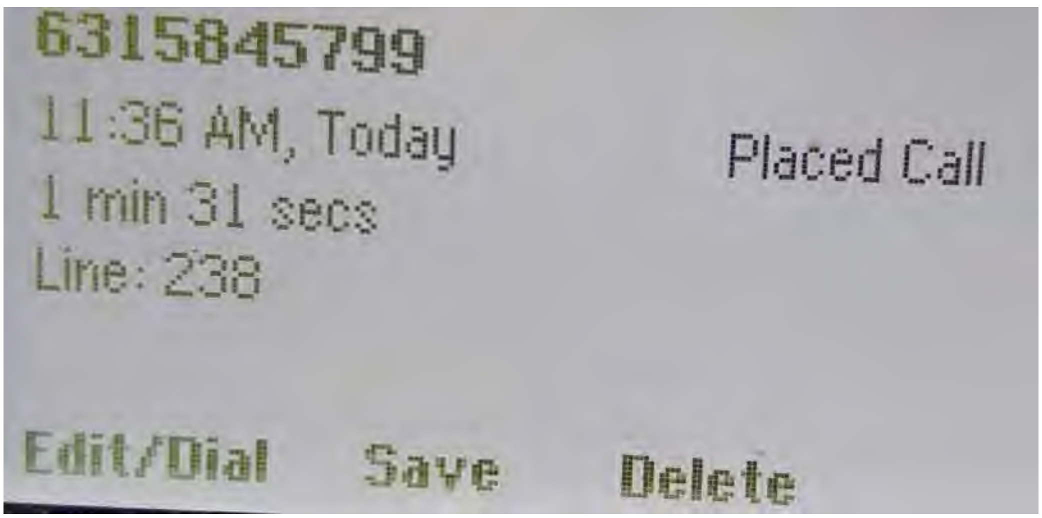
Question	Answer
IF YOU WOULD LIKE A REPLY YOU MUST FILL IN YOUR NAME AND CONTACT INFORMATION.	
1) Name	Rebecca Goldberg
2) Address	177 Crossways Park Drive Woodbury NY 11797
3) Phone	516-224-5238
4) Email	rgoldberg@cameronengineering.com
5) What is your question or comment? Please describe in detail.	Hello, This is to follow up on a Fire Department service availability letter sent to Chief Springer, regarding the Gyrodyne subdivision at Route 25A-Mills Pond Road. I would like to email a copy of the letter as well, and am requesting an email address or an online format to share the letter in PDF format. Please email or call to discuss as you prefer. Thank you very much.

Below are photos of the engineer's telephone call log, showing outgoing calls placed on June 19, 2018 to three community service providers: the Police Department, Fire Department, and Water District.

1) 631-846-6202: Call to Superintendent Nustad, St. James Water District



2) 631-584-5799: Call to Suffolk County Police Department, Fourth Precinct



3) 631-854-8478: Call to St. James Fire Department

Rebecca Goldberg

From: Rebecca Goldberg
Sent: Wednesday, June 20, 2018 3:07 PM
To: 'SJFD@Optonline.net'
Subject: Gyrodyne Subdivision - letter request
Attachments: L 06-20-18 Fire revised.pdf

Dear Kelly,

Thank you for your phone call earlier today. Attached please find an updated letter for Chief Ryan's attention, requesting feedback on the attached subdivision and ability to serve by the Department.
You or anyone at the Department are welcome to contact me or David Tepper with any questions.

Best regards,
Rebecca

Rebecca Goldberg, P.E., LEED AP
Transportation Engineer/Senior Project Manager

CAMERON ENGINEERING & ASSOCIATES, LLP

177 Crossways Park Drive ▪ Woodbury, NY 11797
Phone: 516.224.5238 ▪ *Fax:* 516.827.4920

45 West 36th Street, Third Floor ▪ New York, NY 10018
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303 Old Tarrytown Road, First Floor ▪ White Plains, NY 10603
Phone: 914.721.8300 ▪ *Fax: 914-997-0957*

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& ASSOCIATES, L.L.P.

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May 23, 2017
Revised June 20, 2018

Ryan Davis, Chief
St. James Fire District
221 Jefferson Ave.
St. James, NY 11780-2901

Re: Gyrodyne LLC property: east side of Mills Pond Road between North Country Road and LIRR
Proposed Subdivision
Request for Resource Availability (Fire Protection/EMS)
CE 338 A

Dear Chief Davis:

Cameron Engineering & Associates, LLP is conducting a study of the potential impacts of a proposed subdivision at the Gyrodyne LLC property on the southeast corner of Mills Pond Road and North Country Road/Route 25A. This letter is to request fire protection and EMS availability from the St. James Fire District for the above referenced proposed project, a subdivision into nine (9) lots. The May 2017 letter referenced eight lots; the ninth lot would be used for parking.

Specifically, the proposed subdivision would retain the existing on-site uses (four light industrial structures and the Flowerfield catering hall) and could add 130,000 s.f. of medical or general offices, 220 assisted living units, a 150-room hotel with a 500-seat conference center, and a sewage treatment plant (see attached Location Map and Preliminary Subdivision Plan). The subdivision is in the preliminary planning stages, so the eventual land use mix and sizes may change somewhat.

Please advise regarding your department's ability to properly serve the proposed facilities on the site.

A Preliminary Subdivision Plan and a Location Map are attached for your reference. Please provide us with the requested information at your earliest possible convenience. Should you have any questions or require additional information, please feel free to contact me at (516) 224-5227. Thank you for your assistance with this matter.

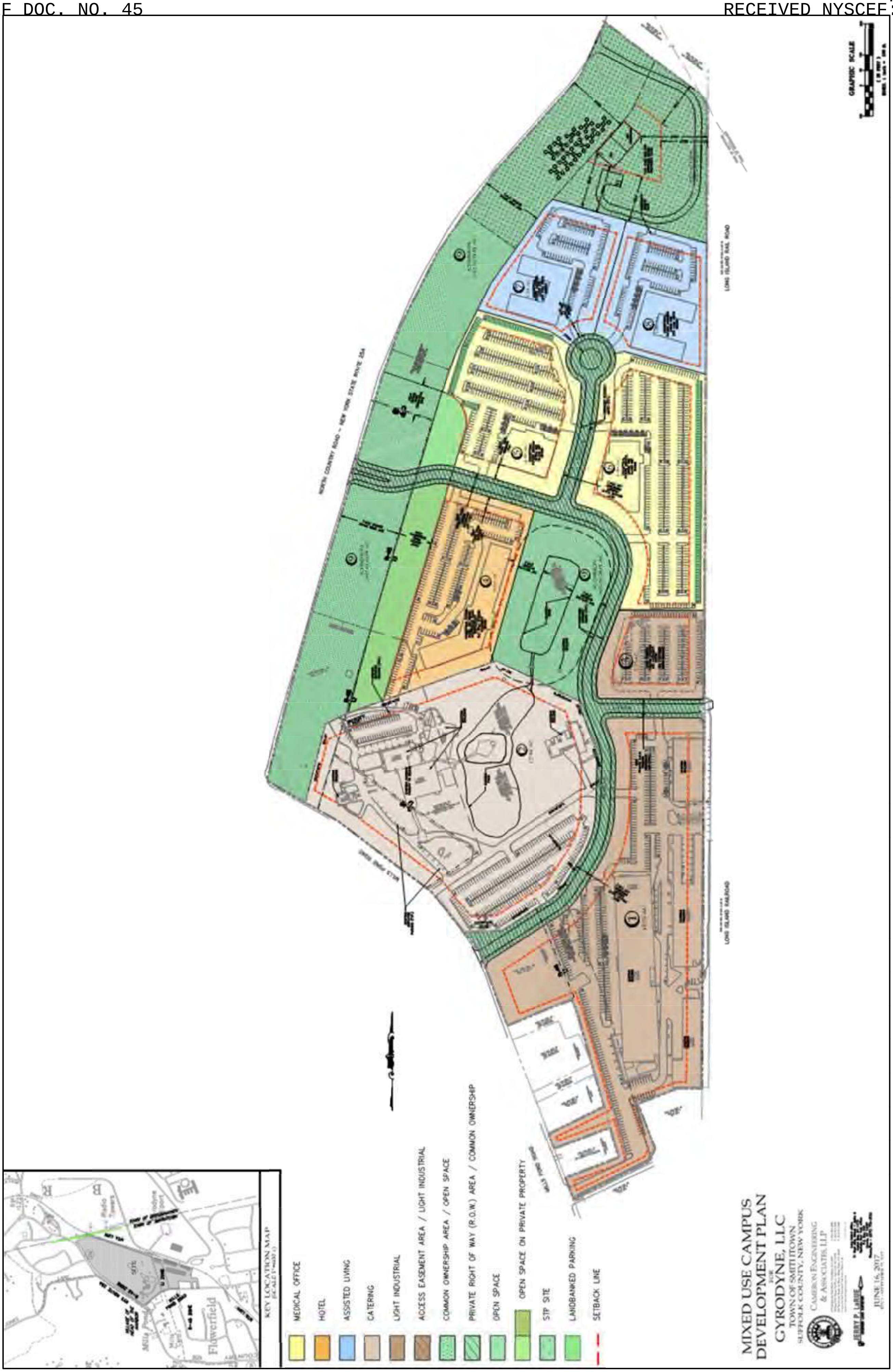
Very truly yours,

Rebecca Goldberg

Rebecca Goldberg FOR David J. Tepper
Planner

Enclosures:
Aerial/Location Map
Preliminary Subdivision Map

K:\C300-361\CE 338A\0 - Flowerfield Subdivision\DEIS\Appendix B - Correspondence\Community Service Letters\L 06-20-18 Fire revised.docx


GRAPHIC SCALE
NORTH COUNTRY ROAD - NEW YORK STATE ROUTE 25A
LONG ISLAND RAIL ROAD
LONG ISLAND RAILROAD
KEY LOCATION MAP
Flowerfield
MEDICAL OFFICE
HOTEL
ASSISTED LIVING
CATERING
LIGHT INDUSTRIAL
ACCESS EASEMENT AREA / LIGHT INDUSTRIAL
COMMON OWNERSHIP AREA / OPEN SPACE
PRIVATE RIGHT OF WAY (R.O.W.) AREA / COMMON OWNERSHIP
OPEN SPACE
OPEN SPACE ON PRIVATE PROPERTY
STP SITE
LANDBANKED PARKING
SETBACK LINE
MIXED USE CAMPUS
DEVELOPMENT PLAN
FOR
GYRODYNE, LLC
TOWN OF SMITHTOWN
SUFFOLK COUNTY, NEW YORK
CAMERON ENGINEERING
& ASSOCIATES, LLP
JUNE 16, 2017


NORTH COUNTRY ROAD (NYS ROUTE 25A)
LIRR
FLOWERFIELD
CELEBRATIONS
CATERING HALL
EXISTING LIGHT
INDUSTRIAL
PART OF STONY
BROOK UNIVERSITY
CEWIT
MILLS POND
ROAD
GYRODYNE, LLC
AERIAL MAP
CAMERON ENGINEERING
& ASSOCIATES, LLP
177 Crossways Park Drive, Woodbury, NY 11797 T: (516) 827-4900
45 West 36th Street, 3rd Floor, New York, NY 10018 T: (212) 324-4000
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Suffolk County Police Department

SENDER: COMPLETE

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Sergeant Thomas Henry
SCPD - Fourth Precinct
727 Veterans Memorial Hwy
Smithtown, NY 11787

9590 9402 4372 8190 3000 61

2. Article Number (Transfer from service label)

7015 1520 0001 5648 0258

PS Form 3811, July 2015 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X

☐ Agent
☐ Addressee

B. Received by (Printed Name)

C. Date of Delivery

FEB - 7 [illegible]

TOWN ... USPS

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☒ No

3. Service Type

☐ Adult Signature
☐ Adult Signature Restricted Delivery
☐ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
[illegible]
[illegible] Restricted Delivery
(over $500)

☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

Domestic Return Receipt

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& ASSOCIATES, L.L.P.

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Michael A. De Giglio, R.L.A.

May 23, 2017
Revised: June 20, 2018 &
January 18, 2019

Sergeant Thomas Healy
Suffolk County Police Department, Fourth Precinct
727 Veterans Memorial Highway
Smithtown, NY 11787

Re: Gyrodyne LLC property (Flowerfield):
East side of Mills Pond Road between North Country Road and LIRR Proposed Subdivision
Request for Resource Availability (Police Protection)
CE 338 A

Dear Sergeant Healy:

Cameron Engineering & Associates, LLP is conducting a study of the potential impacts of a proposed subdivision at the Gyrodyne LLC property on the southeast corner of Mills Pond Road and North Country Road/Route 25A. This letter is to request police protection and coordination for the above referenced proposed project, a subdivision into nine (9) lots. The original May 2017 letter referenced eight lots; the ninth lot would be used for parking.

Specifically, the proposed subdivision would retain the existing on-site uses (four light industrial structures and the Flowerfield catering hall) and could add 130,000 s.f. of medical or general offices, 220 assisted living units, a 150-room hotel with a 500-seat conference center, and a sewage treatment plant (see attached Location Map and Preliminary Subdivision Plan). The subdivision is in the preliminary planning stages, so the eventual land use mix and sizes may change somewhat.

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Very truly yours,

David J. Tepper, AICP
Planner

Enclosures:
Aerial/Location Map
Preliminary Subdivision Map

K:\C300-361\CE 338A\0 - Flowerfield Subdivision\DEIS\Appendix B - Correspondence\Community Service Letters\L 01-18-19 Police revised.docx


NORTH COUNTRY ROAD (NYS ROUTE 25A)
LIRR
FLOWERFIELD
CELEBRATIONS
CATERING HALL
EXISTING LIGHT
INDUSTRIAL
PART OF STONY
BROOK UNIVERSITY
CEWIT
MILLS POND
ROAD
GYRODYNE, LLC
AERIAL MAP
CAMERON ENGINEERING
& ASSOCIATES, LLP
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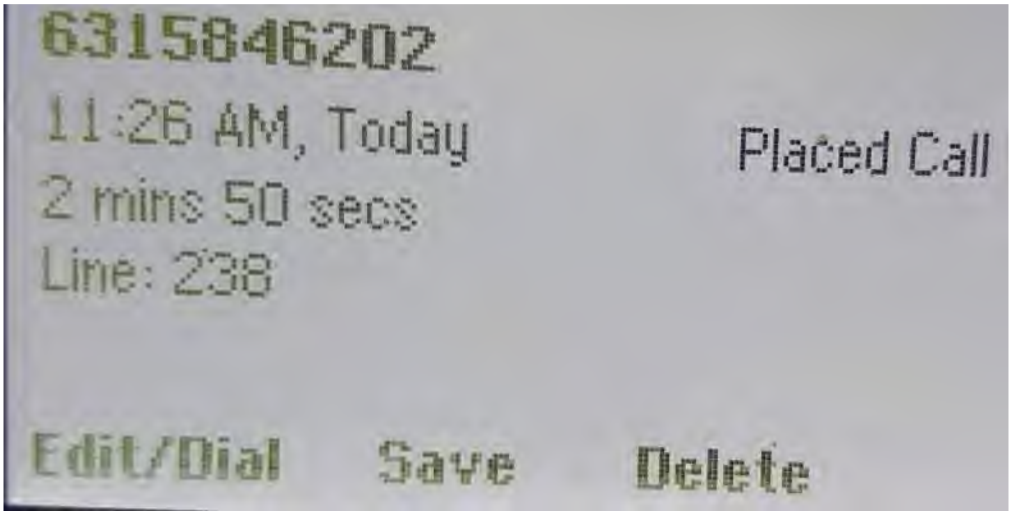
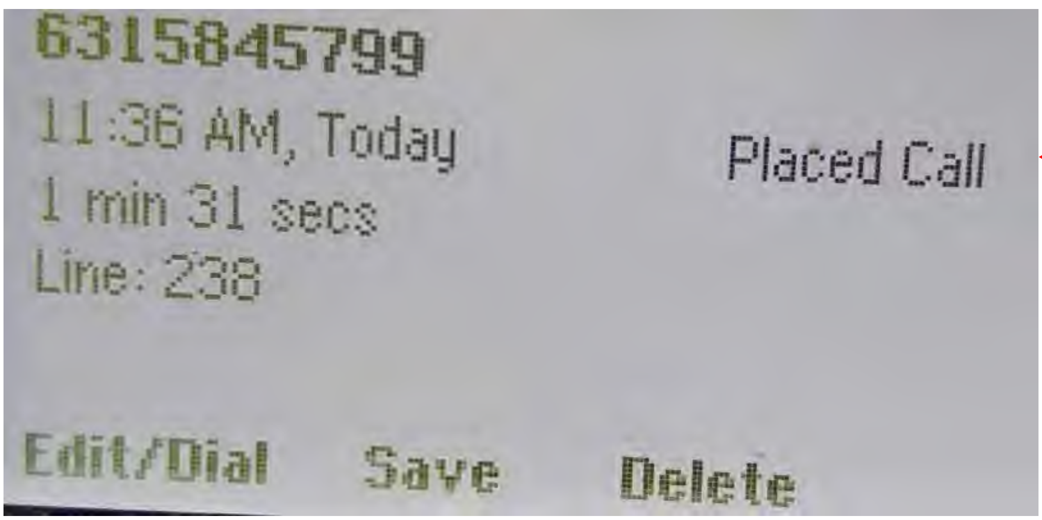
LONG ISLAND RAIL ROAD
LONG ISLAND RAILROAD
MEDICAL OFFICE
HOTEL
ASSISTED LIVING
CATERING
LIGHT INDUSTRIAL
ACCESS EASEMENT AREA / LIGHT INDUSTRIAL
COMMON OWNERSHIP AREA / OPEN SPACE
PRIVATE RIGHT OF WAY (R.O.W.) AREA / COMMON OWNERSHIP
OPEN SPACE
OPEN SPACE ON PRIVATE PROPERTY
STP SITE
SETBACK LINE
MIXED USE CAMPUS
DEVELOPMENT PLAN
FOR
GYRODYNE, LLC
TOWN OF SMITHTOWN
SUFFOLK COUNTY, NEW YORK
JUNE 16, 2017

Below are photos of the engineer's telephone call log, showing outgoing calls placed on June 19, 2018 to three community service providers: the Police Department, Fire Department, and Water District.

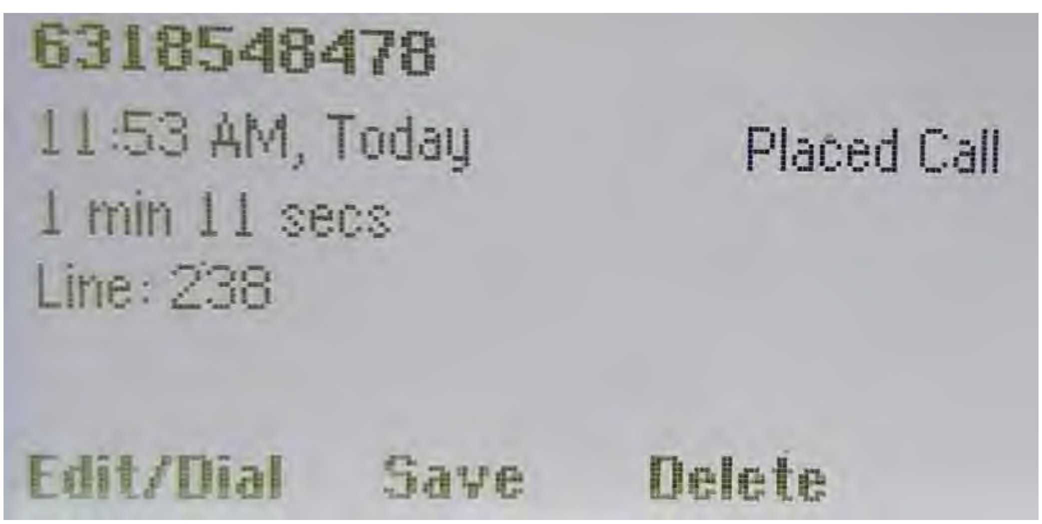
1) 631-846-6202: Call to Superintendent Nustad, St. James Water District



2) 631-584-5799: Call to Suffolk County Police Department, Fourth Precinct



3) 631-854-8478: Call to St. James Fire Department



Rebecca Goldberg

From:	Rebecca Goldberg
Sent:	Tuesday, June 19, 2018 12:01 PM
To:	'Harold.Jantzen@suffolkcountyny.gov'
Subject:	Letter requesting police coverage information - proposed subdivision, St. James
Attachments:	Police Service Letter.pdf

Dear Inspector Jantzen,

I left a voicemail message with Officer Laveglia as well. Attached please find a copy of the letter mailed to you requesting feedback about the ability to serve a proposed subdivision in St. James, at the Gyrodyne/Flowerfield property. It was sent by regular mail. If you would please provide feedback it would be very much appreciated.

Please feel free to email or call (516-224-5238) to discuss, as you prefer.

Thank you very much,
Rebecca

Rebecca Goldberg, P.E., LEED AP
Transportation Engineer/Senior Project Manager

CAMERON ENGINEERING & ASSOCIATES, LLP

177 Crossways Park Drive ▪ Woodbury, NY 11797
Phone: 516.224.5238 ▪ *Fax:* 516.827.4920

45 West 36th Street, Third Floor ▪ New York, NY 10018
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Michael A. De Giglio, R.L.A.

May 23, 2017

Inspector Harold Jantzen
Commanding Officer
Suffolk County Police Department, Fourth Precinct
727 Veterans Memorial Highway
Smithtown, NY 11787

Re: Gyrodyne LLC property: east side of Mills Pond Road between North Country Road and LIRR
Proposed Subdivision
Request for Resource Availability (Police Protection)
CE 338 A

Dear Mr. Jantzen:

Cameron Engineering & Associates, LLP is conducting a study of the potential impacts of a proposed subdivision at the Gyrodyne LLC property on the southeast corner of Mills Pond Road and North Country Road/Route 25A. This letter is to request availability of police services from the Suffolk County Police Department (4th Precinct) for the above referenced proposed project, a subdivision into eight (8) lots. Specifically, the proposed subdivision would retain the existing on-site uses (four light industrial structures and the Flowerfield catering hall) and could add 129,750 s.f. of medical office space, 220 assisted living units, and a 150-room hotel with a 500-seat conference center (see attached Location Map and Preliminary Subdivision Plan). The subdivision is in the preliminary planning stages, so the eventual land use mix and sizes may change.

Please advise regarding your department's ability to properly serve the proposed facilities on the site.

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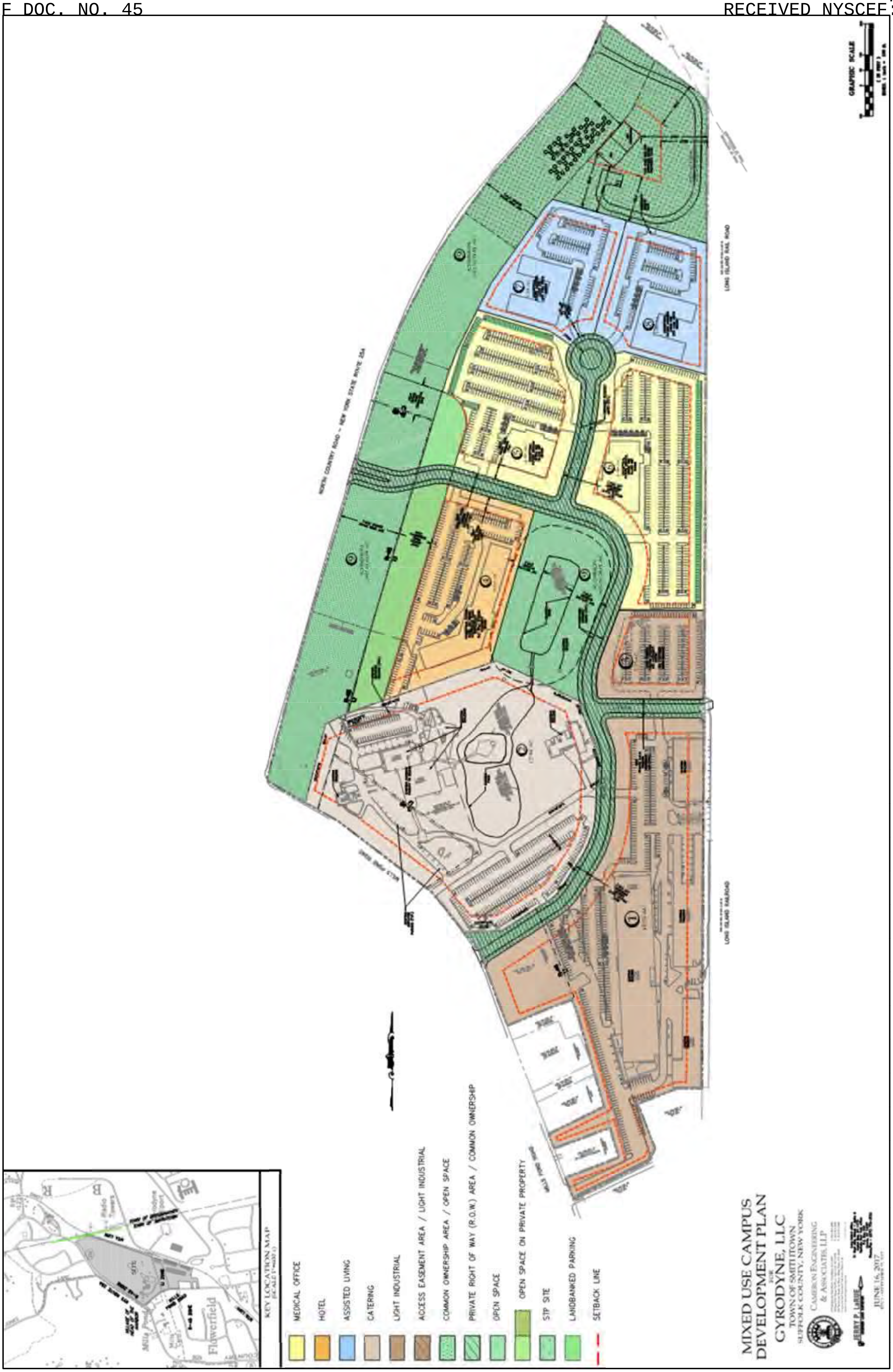
Very truly yours,

Rebecca Goldberg
FOR David J. Tepper
Planner

Enclosures:
Aerial/Location Map
Preliminary Subdivision Map

K:\C300-361\CE 338A\2017\Flowerfield\DEIS\Appendix B - Correspondence\Community Service Letters\L 05-23-17 Police.docx


NORTH COUNTRY ROAD - NEW YORK STATE ROUTE 25A
LONG ISLAND RAIL ROAD
LONG ISLAND RAILROAD
GRAPHIC SCALE
KEY LOCATION MAP
Flowerfield
MEDICAL OFFICE
HOTEL
ASSISTED LIVING
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FOR
GYRODYNE, LLC
TOWN OF SMITHTOWN
SUFFOLK COUNTY, NEW YORK
CAMERON ENGINEERING
& ASSOCIATES, LLP
JUNE 16, 2017


NORTH COUNTRY ROAD (NYS ROUTE 25A)
LIRR
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CELEBRATIONS
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INDUSTRIAL
PART OF STONY
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303 Tarrytown Road, 1st Floor, White Plains, NY 10603 T: (914) 721-8300
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Rebecca Goldberg

From: Rebecca Goldberg
Sent: Wednesday, June 20, 2018 4:59 PM
To: 'Thomas.Healy@suffolkcountyny.gov'
Cc: David Tepper
Subject: Letter about Gyrodyne-Flowerfield proposed subdivision
Attachments: L 06-20-18 Police revised.pdf

Dear Sergeant Healy,

Thank you for your call just now. Attached please find a copy of the letter about police protection services for the proposed Gyrodyne-Flowerfield subdivision, including a map and description of what is proposed.
Feel free to call or email with any questions. Thank you again.

Best regards,
Rebecca

Rebecca Goldberg, P.E., LEED AP
Transportation Engineer/Senior Project Manager

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Active Member of ACEC New York

May 23, 2017
Revised June 20, 2018

Sergeant Thomas Healy
Suffolk County Police Department, Fourth Precinct
727 Veterans Memorial Highway
Smithtown, NY 11787
Sent via email to Thomas.Healy@suffolkcountyny.gov

Re: Gyrodyne LLC property (Flowerfield):
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Specifically, the proposed subdivision would retain the existing on-site uses (four light industrial structures and the Flowerfield catering hall) and could add 130,000 s.f. of medical or general offices, 220 assisted living units, a 150-room hotel with a 500-seat conference center, and a sewage treatment plant (see attached Location Map and Preliminary Subdivision Plan). The subdivision is in the preliminary planning stages, so the eventual land use mix and sizes may change somewhat.

Please advise regarding your department's ability to properly serve the proposed facilities on the site.

A Preliminary Subdivision Plan and a Location Map are attached for your reference. Please provide us with the requested information at your earliest possible convenience. Should you have any questions or require additional information, please feel free to contact me at (516) 224-5227. Thank you for your assistance with this matter.

Very truly yours,

Rebecca Goldberg

FOR David J. Tepper, AICP
Planner

Enclosures:
Aerial/Location Map
Preliminary Subdivision Map

K:\C300-361\CE 338A\0 - Flowerfield Subdivision\DEIS\Appendix B - Correspondence\Community Service Letters\L 06-20-18 Police revised.docx


NORTH COUNTRY ROAD (NYS ROUTE 25A)
LIRR
FLOWERFIELD CELEBRATIONS CATERING HALL
EXISTING LIGHT INDUSTRIAL
PART OF STONY BROOK UNIVERSITY CEWIT
MILLS POND ROAD
GYRODYNE, LLC
AERIAL MAP
CAMERON ENGINEERING & ASSOCIATES, LLP
177 Crossways Park Drive, Woodbury, NY 11797 T: (516) 827-4900
45 West 36th Street, 3rd Floor, New York, NY 10018 T: (212) 324-4000
303 Tarrytown Road, 1st Floor, White Plains, NY 10603 T: (914) 721-8300
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www.Cameronengineering.com
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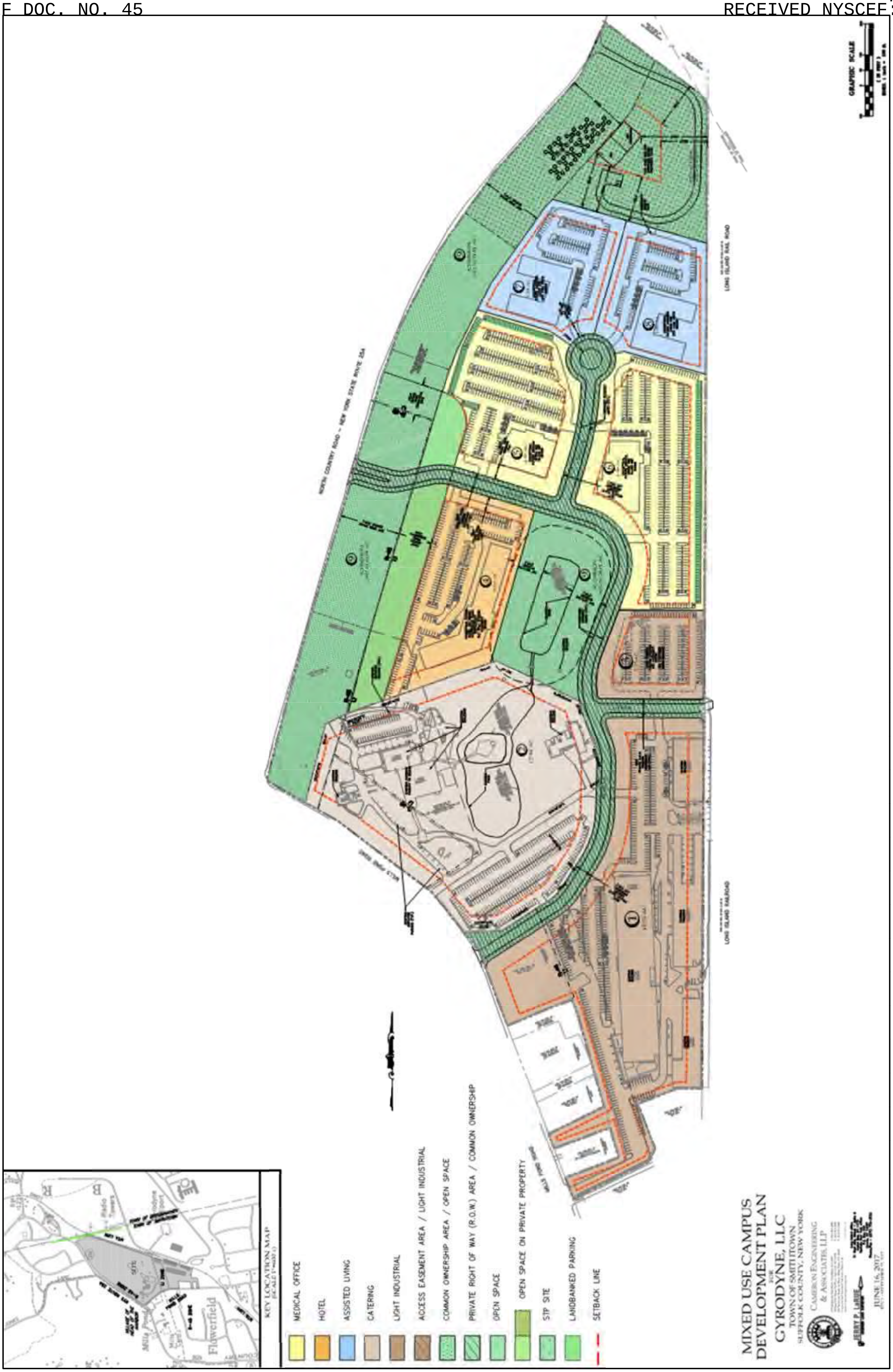
NORTH COUNTRY ROAD - NEW YORK STATE ROUTE 25A
LONG ISLAND RAIL ROAD
LONG ISLAND RAILROAD
KEY LOCATION MAP
Flowerfield
MEDICAL OFFICE
HOTEL
ASSISTED LIVING
CATERING
LIGHT INDUSTRIAL
ACCESS EASEMENT AREA / LIGHT INDUSTRIAL
COMMON OWNERSHIP AREA / OPEN SPACE
PRIVATE RIGHT OF WAY (R.O.W.) AREA / COMMON OWNERSHIP
OPEN SPACE
OPEN SPACE ON PRIVATE PROPERTY
STP SITE
LANDBANKED PARKING
SETBACK LINE
MIXED USE CAMPUS
DEVELOPMENT PLAN
GYRODYNE, LLC
TOWN OF SMITHTOWN
SUFFOLK COUNTY, NEW YORK
CAMERON ENGINEERING
& ASSOCIATES, LLP
JUNE 16, 2017

St. James Water District

7015 1520 0001 5648 0388

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Sent To Chris Nysted
Street and Apt. No., or PO Box No. St. James water distri
City, State, ZIP+4®

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

CAMERON ENGINEERING
& ASSOCIATES, L.L.P.

177 Crossways Park Drive, Woodbury, NY 11797, (516) 827-4900
1411 Broadway, Suite 610, New York, NY 10018, (212) 324-4000
303 Old Tarrytown Road, 1st Floor, White Plains, NY 10603, (914) 721-8300

Active Member of ACEC New York
American Council of Engineering Companies

April 19, 2019

Chris Nustad, Superintendent
St. James Water District
460 Lake Ave.
St. James, NY 11780
Sent via Certified Mail

Re: Gyrodyne LLC property: east side of Mills Pond Road between North Country Road and LIRR
Proposed Subdivision
Request for Water Availability
CE 338 A

Dear Mr. Nustad:

Cameron Engineering & Associates, LLP is conducting a study of the potential impacts of a proposed subdivision at the Gyrodyne LLC property on the southeast corner of Mills Pond Road and North Country Road/Route 25A. We received your letter dated June 18, 2018 indicating that there is a 12-inch water main on North Country Road/Route 25A and 8 and 12-inch water mains on Mills Pond Road. As a result, a water main extension would not be required to connect to the St. James Water District. This letter is sent as a follow-up to confirm that there is water availability from the St. James Water District for the above referenced proposed project, a subdivision into nine (9) lots.

Specifically, the proposed subdivision would retain the existing on-site uses (four light industrial structures and the Flowerfield catering hall) and could add 130,000 square feet (SF) of medical office space, 220 assisted living units, and a 150-room hotel (see attached Location Map and Preliminary Development Exhibit). The subdivision is a preliminary step in the future development of the property, and as such, the eventual land use mix and sizes may change.

As indicated in our previous letter, there is one existing well located on the property that is used for common area irrigation and dry-weather water level maintenance of the pond. This well would continue to be used for irrigation purposes. The irrigation system would only operate seasonally, using drip irrigation wherever possible and would utilize moisture sensors to conserve water.

As shown in the table below, the estimated domestic water demand generated by the existing uses is 19,860 gallons per day (gpd). The estimated future domestic water demand to be generated by the proposed new uses is 68,700 gpd, resulting in a total domestic water demand of 88,560 gpd (see table below).

Unit Type	Number/Size[1]	Daily Water Demand Rate	Water Demand (gpd)
Existing Industrial Park			
General Light Industry	35,715 s.f.	0.04 gpd / s.f.	1,429
Retail	750 s.f.	0.1 gpd / s.f.	75
Office	23,123 s.f.	0.06 gpd / s.f.	1,387
Medical Office	2,817 s.f.	0.1 gpd / s.f.	282
Fitness Center Over 5,000 s.f.	15,491 s.f.	0.3 gpd / s.f.	4,647
Fitness Center Under 5,000 s.f.	3,469 s.f.	0.1 gpd / s.f.	347
School	9,175 s.f.	0.1 gpd / s.f.	918
Exhibition Space	2,130 s.f.	0.1 gpd / s.f.	213
Occupy Vacant Space	37,067 s.f.	0.1 gpd / s.f.	3,707
Existing Catering Hall	874 occupants	7.5 gpd / person	6,555
Existing Residence on Caterer Lot	1 unit	300 gpd / unit	300
Total of Existing Land Uses			**19,860 gpd**
Hotel	150 rooms	150 gpd / room	22,500
Restaurant	150 seats	30 gpd / seat	4,500
Conference Center	500 seats	3 gpd / seat	1,500
Day Spa / Fitness	10,000 s.f.	0.3 gpd / s.f.	3,000
Medical Office	130,000 s.f.	0.1 gpd / s.f.	13,000
Assisted Living	220 units	110 gpd / unit	24,200
Total of Proposed Subdivision Uses			**68,700 gpd**
		Total	**88,560**

Source: *Standards for Approval of Plans and Construction for Sewage Disposal Systems for Other than Single-Family Residences.* Suffolk County Department of Health Services, Division of Environmental Quality. December 1, 2009.

A Preliminary Development Exhibit and a Location Map are attached for your reference. Please provide the requested information at your earliest possible convenience. Should you have any questions or require additional information, please feel free to contact me at (516) 224-5227. Thank you for your assistance with this matter.

Very truly yours,

David Tepper

David J. Tepper, AICP
Planner

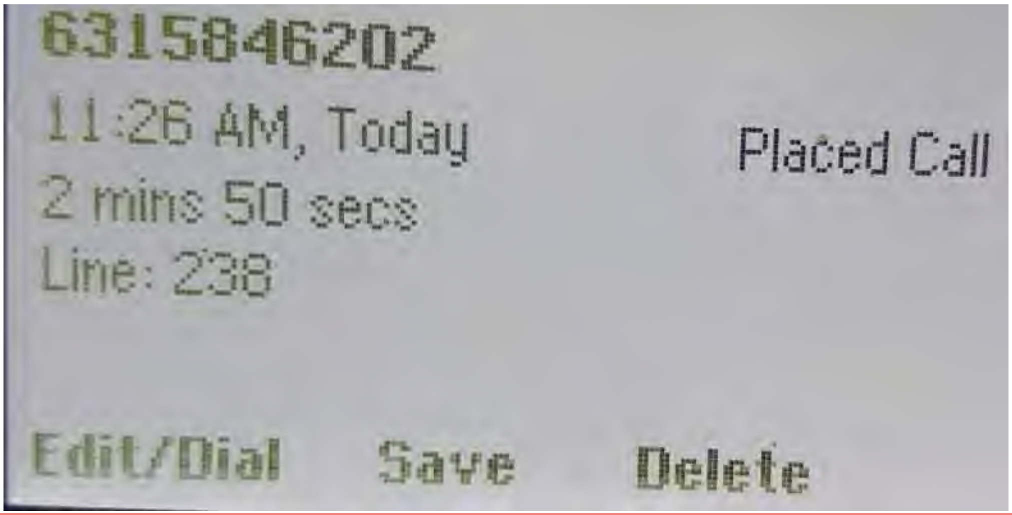
Enclosures:

Aerial/Location Map
Preliminary Development Exhibit

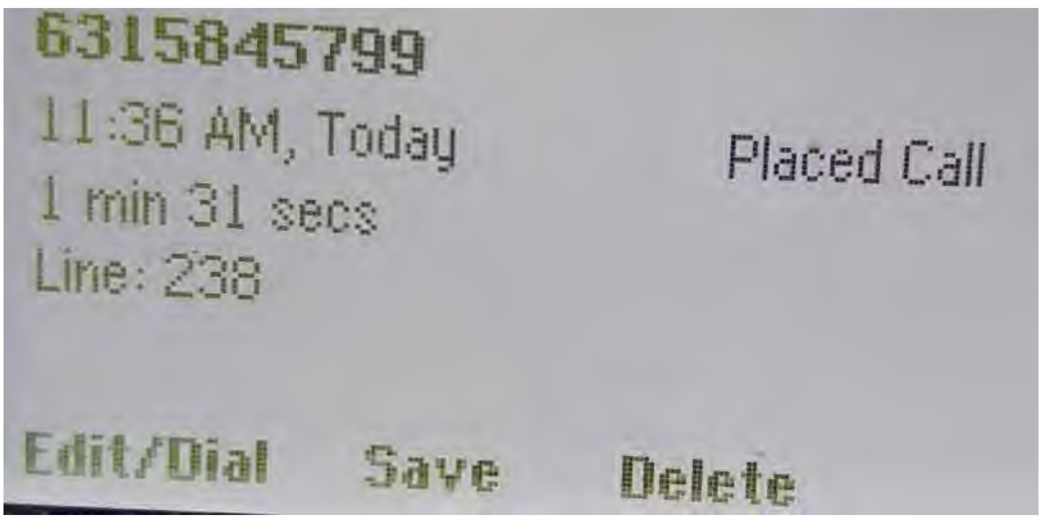
[1] Source: Rent roll data provided by Gyrodyne LLC.

Below are photos of the engineer's telephone call log, showing outgoing calls placed on June 19, 2018 to three community service providers: the Police Department, Fire Department, and Water District.

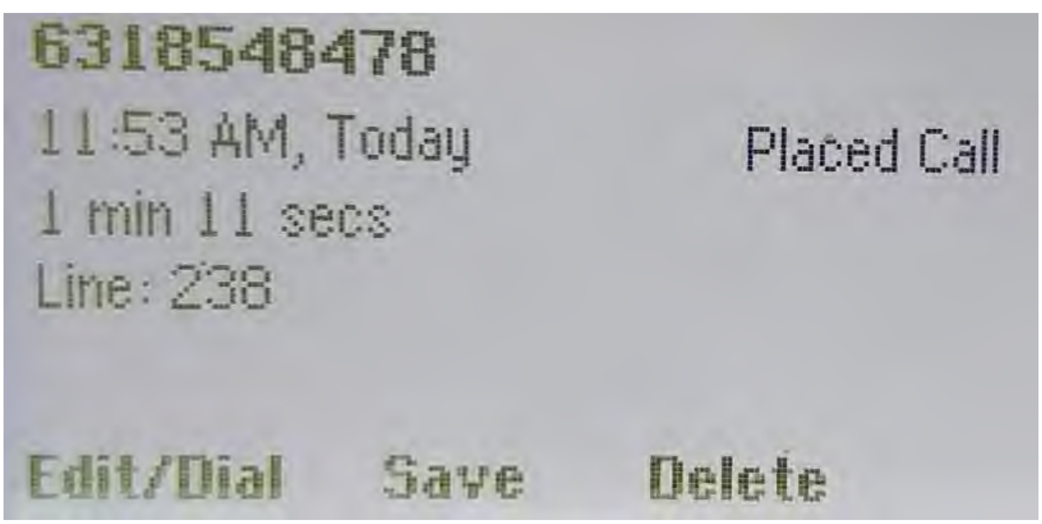
1) 631-846-6202: Call to Superintendent Nustad, St. James Water District



2) 631-584-5799: Call to Suffolk County Police Department, Fourth Precinct



3) 631-854-8478: Call to St. James Fire Department



TOWN OF SMITHTOWN

SUPERVISOR
EDWARD R. WEHRHEIM
TOWN COUNCIL
THOMAS J. MCCARTHY
LYNNE C. NOWICK
LISA M. INZERILLO
THOMAS W. LOHMANN

ST. JAMES WATER DISTRICT
SUPERINTENDENT
CHRISTOPHER NUSTAD
90 E. MAIN STREET
KINGS PARK, NY 11754

June 18, 2018

Suffolk County Department of Health
Bureau of Drinking Water Suite 1C
360 Yaphank Avenue
Yaphank, NY 11980

Re: Water Availability Letter

I have reviewed the subdivision map of Gyrodyne LLC located in St. James, NY. A 12" water main exists on North Country Rd (25A) and a 12" & 8" water main exists on Mill Pond Rd, St James, NY. Therefore, a water main extension would not be necessary to the St. James Water District.

If you have any questions or comments on this matter, please contact our office. Thank you.

Sincerely,

Christopher Nustad

RECEIVED
JUN 25 2018
CAMERON ENGINEERING & ASSOCIATES, LLP

Rebecca Goldberg

From: Rebecca Goldberg
Sent: Tuesday, June 19, 2018 11:35 AM
To: 'kschuette@tosgov.com'
Subject: Letter requesting water service availability reply - proposed subdivision
Attachments: Water Availability Letter.pdf

Good morning,

As discussed, attached please find a copy of the letter mailed to Superintendent Nustad requesting feedback about the ability to serve a proposed subdivision in St. James. It was sent by regular mail. Please feel free to email or call (516-224-5238) to discuss, as you prefer.

Thank you very much,
Rebecca

Rebecca Goldberg, P.E., LEED AP
Transportation Engineer/Senior Project Manager

CAMERON ENGINEERING & ASSOCIATES, LLP

177 Crossways Park Drive ▪ Woodbury, NY 11797
Phone: 516.224.5238 ▪ *Fax:* 516.827.4920

45 West 36th Street, Third Floor ▪ New York, NY 10018
Phone: 212.324.4000 ▪ *Fax:* 646.216.2001

303 Old Tarrytown Road, First Floor ▪ White Plains, NY 10603
Phone: 914.721.8300 ▪ *Fax: 914-997-0957*

CAMERON ENGINEERING & ASSOCIATES, L.L.P.

177 Crossways Park Drive, Woodbury, NY 11797, (516) 827-4900
45 West 36th Street, Third Floor, New York, NY 10018, (212) 324-4000
303 Old Tarrytown Road, 1st Floor, White Plains, NY 10603, (914) 721-8300

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Michael A. De Giglio, R.L.A.

May 23, 2017

Chris Nustad, Superintendent
St. James Water District
460 Lake Ave.
St. James, NY 11780

Re: Gyrodyne LLC property: east side of Mills Pond Road between North Country Road and LIRR
Proposed Subdivision
Request for Water Availability
CE 338 A

Dear Mr. Nustad:

Cameron Engineering & Associates, LLP is conducting a study of the potential impacts of a proposed subdivision at the Gyrodyne LLC property on the southeast corner of Mills Pond Road and North Country Road/Route 25A. This letter is to request water availability from the St. James Water District for the above referenced proposed project, a subdivision into eight (8) lots. Specifically, the proposed subdivision would retain the existing on-site uses (four light industrial structures and the Flowerfield catering hall) and could add 129,750 square feet (SF) of medical office space, 220 assisted living units, and a 150-room hotel with a 500-seat conference center (see attached Location Map and Preliminary Subdivision Plan). The subdivision is in the preliminary planning stages, so the eventual land use mix and sizes may change.

There is one existing well located on the property that is used for common area irrigation and dry-weather water level maintenance of the pond. This well would continue to be used for irrigation purposes. The irrigation system would only operate seasonally, using drip irrigation wherever possible and would utilize moisture sensors to conserve water.

As shown in the table below, the estimated domestic water demand generated by the existing uses is 12,591 gallons per day (gpd). The estimated future domestic water demand to be generated by the proposed new uses is 68,675 gpd, resulting in a total domestic water demand of 81,266 gpd (see table below).

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Existing	Size/Quantity	Rate	Gallons per day
Light Industrial Buildings	150,900 SF	0.04 gpd/SF	6,036
Flowerfield Catering Hall	34,685 SF (874 seats max.)	7.5 gpd/seat	6,555
		Total Existing	**12,591**
Proposed	Quantity	Rate	Gallons per day
Medical Offices	129,750 SF	0.10 gpd/SF	12,975
Assisted Living	175,000 SF/220 units	110 gpd/bed	24,200
Hotel	150 rooms	150 gpd/unit	22,500
Conference Center	500 seats	3 gpd/seat	1,500
Restaurant	150 seats	30 gpd/seat	4,500
Spa/Fitness Center	10,000 SF	0.3 gpd/SF	3,000
		Total (Proposed New Uses)	**68,675**
		Total (Proposed + Existing)	**81,266**

Source: *Standards for Approval of Plans and Construction for Sewage Disposal Systems for Other than Single-Family Residences.* Suffolk County Department of Health Services, Division of Environmental Quality. December 1, 2009.

A Preliminary Subdivision Plan and a Location Map are attached for your reference. Please provide the requested information at your earliest possible convenience. Should you have any questions or require additional information, please feel free to contact me at (516) 224-5227. Thank you for your assistance with this matter.

Very truly yours,

Rebecca Goldberg

FOR David J. Tepper
Planner

Enclosures:

Aerial/Location Map
Preliminary Subdivision Map

K:\C300-361\CE 338A\2017\Flowerfield\DEIS\Appendix B - Correspondence\Community Service Letters\L 05-23-17 Water.docx

GYRODYNE, LLC
AERIAL MAP

CAMERON ENGINEERING & ASSOCIATES, LLP

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45 West 36th Street, 3rd Floor, New York, NY 10018 T: (212) 324-4000
303 Tarrytown Road, 1st Floor, White Plains, NY 10603 T: (914) 721-8300
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www.Cameronengineering.com

Prepared by Cameron Engineering

LAND USE LEGEND:

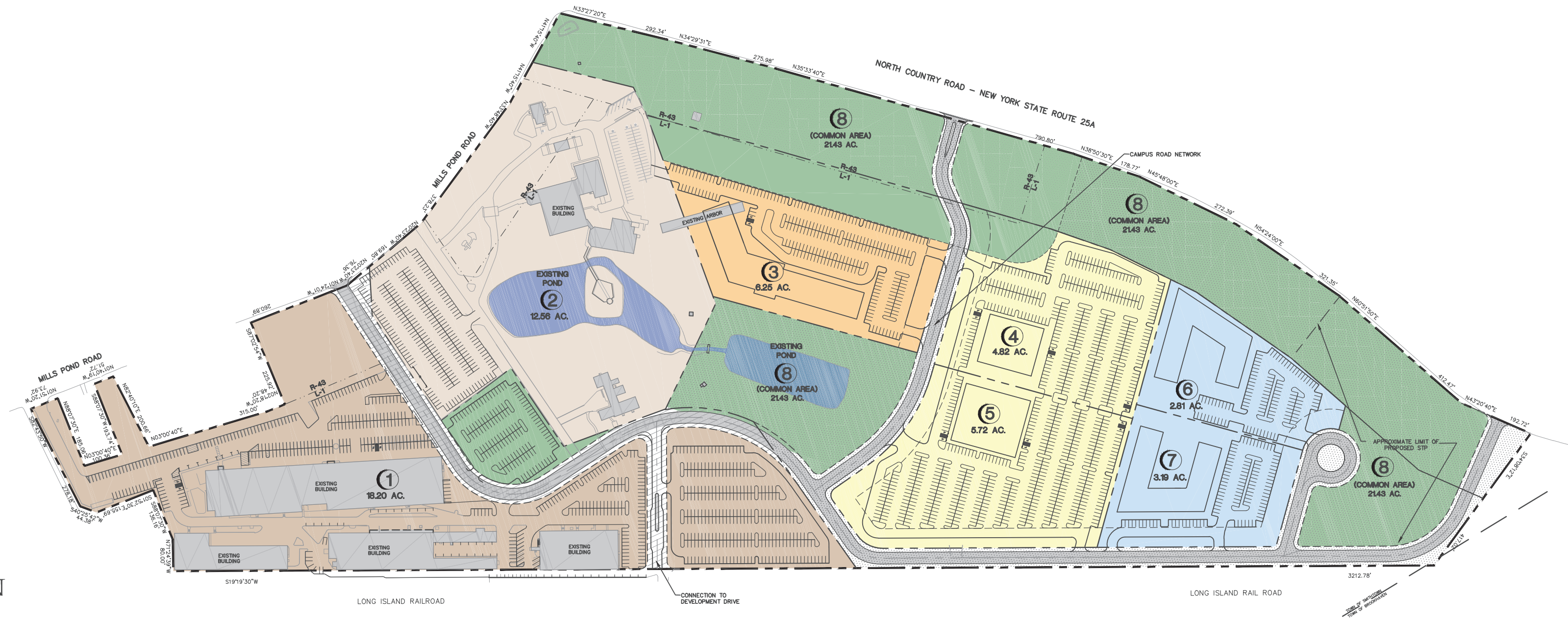
- MEDICAL OFFICE
- HOTEL
- ASSISTED LIVING
- CATERING
- LIGHT INDUSTRIAL
- COMMON OWNERSHIP AREA / OPEN SPACE
- ACCESS EASEMENT AREA / OPEN SPACE
- LANDBANKED PARKING / OPEN SPACE EASEMENTS

LEGEND:

- EXISTING LOT LINE
- PROPOSED LOT LINE
- PROPOSED LOT NO. ⑧
- EASEMENT LINE
- EASEMENT AREA
- PROPOSED ROADWAY LIMITS
- PROPOSED ROADWAY CENTER LINE
- EXISTING BUILDING
- ZONING DISTRICT BOUNDARY R-43 / L-1

EXISTING AND PROPOSED DEVELOPMENT DATA

LOT NUMBER	LOT SIZE (ACRES)	LAND USE	BUILDING SIZE / YIELD	REQUIRED PARKING	EXISTING PARKING	PROPOSED PARKING	PROPOSED LANDBANKED PARKING	PROPOSED SHARED PARKING	TOTAL PARKING
1	18.20	EXISTING MIXED-USE BUILDINGS	132,719 S.F.						
		WITH TOWNE BUS REMAINING		660 + 227 FOR BUS LOT	567		196	124 WITH LOT 2	887
		WITHOUT TOWNE BUS		660	567	164	132		863
2	12.56	EXISTING CATERING HALL	34,685 S.F.	1 PER 4 PEOPLE x 874 = 219	358				358
3	6.25	PROPOSED HOTEL WITH RESTAURANT	150 ROOMS	1.25 PER ROOM = 188	NA	255			255
		PROPOSED DAY SPA / FITNESS	10,000 S.F.	1 PER 150 S.F. = 67					
		PROPOSED CONFERENCE CENTER	500 SEATS	1 PER 4 SEATS = 125	NA	19		106 WITH LOTS 1 & 2	125
4	4.82	PROPOSED MEDICAL OR R&D OFFICE	53,400 S.F.	1 PER 150 S.F. = 356	NA	267	89		356
5	5.72	PROPOSED MEDICAL OR R&D OFFICE	76,350 S.F.	1 PER 150 S.F. = 509	NA	408	101		509
6	2.81	PROPOSED ASSISTED LIVING	104 UNITS	1 PER UNIT = 104	NA	104			104
7	3.19	PROPOSED ASSISTED LIVING	116 UNITS	1 PER UNIT = 116	NA	116			116
8	21.43	PROPOSED COMMON AREA	NA	NA	NA	NA			
TOTAL	74.98								



PRELIMINARY SUBDIVISION MAP
MIXED USE CAMPUS DEVELOPMENT PLAN

FOR

GYRODYNE, LLC

TOWN OF SMITHTOWN
SUFFOLK COUNTY, NEW YORK

CAMERON ENGINEERING & ASSOCIATES, LLP

JERRY P. LaRUE
LICENSED LAND SURVEYOR

Long Island office
71 West Main Street – Suite 6
Oyster Bay, NY 11771
Upstate New York office
P.O. Box 610
Livonia, NY 14487
Phone/Fax – (877) 779-3722

APRIL 2017

GRAPHIC SCALE
150 0 75 150 300
(IN FEET)
HORIZ. 1 inch = 150 ft.

SHEET 1 OF 1

PSEG-Long Island

(no Certified Mail - response was received)

Rebecca Goldberg

From:	PSEG Long Island BRSLI <BRSLI@pseg.com>
Sent:	Friday, June 16, 2017 10:48 AM
To:	Rebecca Goldberg
Subject:	RE: Load letter request - proposed subdivision, St. James, NY
Attachments:	sitemeetingrequest.pdf

Rebecca,

Please complete the attached Site Meeting Request form. These requests are put together by my team who then gets it out to the proper technical parties. They can likely get this done on the phone as opposed to a site meeting (if you like). However, to get the ball rolling I will need this form.

From: Rebecca Goldberg [mailto:RGoldberg@cameronengineering.com]
Sent: Tuesday, June 13, 2017 11:28 AM
To: PSEG Long Island BRSLI
Subject: Load letter request - proposed subdivision, St. James, NY

Email sent from outside of PSEG. Use caution before using links/attachments.

Hello,

Attached is a letter requesting electric power availability for a proposed subdivision in St. James in Suffolk County. The letter includes estimated electric loads, a description of the subdivision, and a location map.

Please let me know if you need any clarification/further information. The project is in the early planning stages, but I'm happy to provide as much information as we have to date.
Replies by email or telephone would be greatly appreciated. Thank you very much.
-Rebecca

Rebecca Goldberg, P.E., LEED AP
Transportation Engineer

CAMERON ENGINEERING & ASSOCIATES, LLP

177 Crossways Park Drive ▪ Woodbury, NY 11797
Phone: 516.224.5238 ▪ *Fax:* 516.827.4920

45 West 36th Street, Third Floor ▪ New York, NY 10018
Phone: 212.324.4000 ▪ *Fax:* 646.216.2001

303 Old Tarrytown Road, First Floor ▪ White Plains, NY 10603

PSEG Long Island
Building & Renovation Services
15 Park Drive
Melville, NY 11747

Field Inquiry/Site Meeting Request Form

Define the specifics explaining why the meeting is requested. Please attach your survey, plans, load letter, and any other documentation for inclusion into a work package. PDF format preferred.

____
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____
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Service Information

Service Size:__________Amperes Overhead ☐ Underground ☐

1ϕ ☐ 3ϕ ☐ Voltage______________

Contact Information

Company Name:

Address:

Contact:

Phone Number:

E-Mail Address:

Is a Drive by Possible?

PLEASE NOTE: The job will not progress until all paperwork has been received.

Submit your request to Building & Renovation Services by E-Mail to BRSLI@pseg.com or by Fax to 1-844-846-1550.

CAMERON ENGINEERING
& ASSOCIATES, L.L.P.

177 Crossways Park Drive Woodbury, NY 11797 (516) 827-4900
45 West 36th Street, Third Floor New York, NY 10018 (212) 324-4000
303 Old Tarrytown Road, 1st Floor White Plains, NY 10603 (914) 721-8300

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Glenn DeSimone, P.E., CPE
Associates
John E. Gursky
Andrew L. Narus, P.E.
Michael A. De Giglio, R.L.A.

June 13, 2017

PSEG-Long Island
Department of Building and Renovation Services
15 Park Drive
Melville, NY 11747
Copy by email to *BRSLI@pseg.com*

Re: Gyrodyne LLC property: east side of Mills Pond Road between North Country Road and LIRR
Proposed Subdivision
Request for Electric Power Availability
CE 338 A

Dear Sir/Madam:

Cameron Engineering & Associates, LLP is conducting a study of the potential impacts of a proposed subdivision at the 74.98-acre Gyrodyne LLC property on the southeast corner of Mills Pond Road and North Country Road/Route 25A. This letter is to request electric power availability from PSEG-Long Island for the above referenced proposed project, a subdivision into eight (8) lots.

Specifically, this subdivision would consist of the following:
Retain existing uses:

- Lot 1: Light industrial buildings (Gyrodyne LLC)
- Lot 2: Flowerfield Celebrations catering hall

New uses associated with the subdivision:

- Lot 3: a 150-room hotel, 150-seat restaurant, 500-seat conference center and 10,000 s.f. day spa/fitness center – approximate footprint 36,500 s.f. with three (3) levels (35' tall)
    - Total building area ±109,500 s.f.
        - 400 s.f. per room, plus common space, hallways, maintenance, etc. (74,500 s.f.)
        - 10,000 s.f. for day spa/fitness
        - 5,000 s.f. restaurant
        - 20,000 s.f. conference center space
- Lots 4 and 5: 129,750 s.f. of medical office space in two buildings – approximate footprints of 17,800 s.f. and 25,500 s.f., each with three (3) levels (35' tall)
    - Total building area ±129,750
- Lots 6 and 7: 220 assisted living units in two buildings – approximate footprints of 28,150 s.f. and 29,550 s.f., each with three (3) levels (35' tall)
    - Total building area ±173,100 s.f.

CAMERON ENGINEERING

  - At 450 s.f. per unit (99,000 s.f.) the common areas, dining, etc. are ±74,100 s.f.
- Lot 8: a wastewater treatment plant with capacity for 90,000 gallons/day, plus open space, interior roads, vegetation, and streetlighting

The subdivision is in the preliminary planning stages, so the eventual land use mix and sizes may change. Based on the currently anticipated uses, the estimated loads are as follows:

BUILDING/SPACE	Area (s.f.)	KVA CONN.	Volts 3-Phase	Amps CONN.
LOT 3 – Hotel				
150 Rooms	60,000	1,770		
Restaurant	5,000	100		
Spa/Fitness	10,000	100		
Conference Center	20,000	160		
Lobby, Reg. Desk, Offices, etc.	5,000	40		
Utilities, Corridors, Stairs, Elevators, HVAC, Fans, Pumps, etc.	9,500	47.5		
Lot 3 Subtotal	109,500	2,217.5	208	6,155
LOT 4 – Medical Office Building	53,400	640.8	208	1,779
LOT 5 – Medical Office Building	76,500	918	208	2,548
LOT 6 – Assisted Living Facility	84,450	844.5	208	2,344
LOT 7 – Assisted Living Facility	88,650	886.5	208	2,461
LOT 8 – Wastewater Treatment Plant		225	208	625
TOTAL		**5,732.3**	**208**	**15,912**

A Preliminary Subdivision Plan and a Location Map are attached for your reference. Please provide the requested information at your earliest possible convenience. Should you have any questions or require additional information, please feel free to contact me at (516) 224-5224. Thank you for your assistance with this matter.

Very truly yours,

Rebecca Goldberg

Rebecca Goldberg, P.E.
Project Engineer

Enclosures:

Aerial/Location Map
Preliminary Subdivision Map

K:\C300-361\CE 338A\2017\Flowerfield\DEIS\Appendix B - Correspondence\Community Service Letters\L 06-13-17 Electric.docx

GYRODYNE, LLC
AERIAL MAP

CAMERON ENGINEERING & ASSOCIATES, LLP

Smithtown Central School District

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☐ Return Receipt (electronic)	$ $0.00
☐ Certified Mail Restricted Delivery	$ $0.00
☐ Adult Signature Required	$ $0.00
☐ Adult Signature Restricted Delivery	$
Postage	$1.15
Total Postage	$7.45

0797
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Postmark Here
WOODBURY NY 11797
AUG 14 2019
08/14/2019

Sent To: Dr. James Grossane, Ed. D.
Smithtown Central School District
Street and: 26 New York Avenue
City, State: Smithtown, NY 11787

Ce 338.18

PS Form 3800, April 2015 PSN 7530-02-000-9047 — See Reverse for Instructions

---

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Dr. James Grossane, Ed. D.
Smithtown Central School District
26 New York Avenue
Smithtown, NY 11787

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& ASSOCIATES, L.L.P.

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Andrew L. Narus, P.E.
Stephen Hadjiyane, P.E., BCEE
Associates
Michael A. De Giglio, R.L.A.
Richard J. Zapolski, Jr., P.E.

April 19, 2019
(Resent August 14, 2019)

Dr. James Grossane, Ed. D., Superintendent of Schools
Smithtown Central School District
26 New York Avenue
Smithtown, New York 11787
Sent via Certified Mail

Re: Gyrodyne LLC property: east side of Mills Pond Road between North Country Road and LIRR
Proposed Subdivision - Informational Letter
CE 338 A

Dear Dr. Grossane:

This is an informational letter for the District about a proposed subdivision at the 74.98-acre Gyrodyne LLC property on the southeast corner of Mills Pond Road and North Country Road/Route 25A. Cameron Engineering & Associates, LLP is conducting a study of the potential impacts of this proposed subdivision.

The subdivision will have no residential uses that might generate school-aged children, making this project a net positive for the Smithtown Central School District.

<u>Retain existing uses:</u> Light industrial buildings and the Flowerfield Celebrations catering hall

<u>New uses associated with the subdivision</u>:
- 150-room hotel
- 130,000 s.f. of medical office space
- 220 assisted living units
- A wastewater treatment plant plus open space, interior roads, vegetation, and streetlighting

Should you have any questions or require additional information, please feel free to contact me at (516) 224-5238. Thank you.

Very truly yours,

Rebecca Goldberg

Rebecca Goldberg, P.E., LEED AP
Civil Engineering Director

Enclosures:
Aerial/Location Map
Preliminary Development Exhibit


NORTH COUNTRY ROAD (NYS ROUTE 25A)
LIRR
FLOWERFIELD CELEBRATIONS CATERING HALL
EXISTING LIGHT INDUSTRIAL
PART OF STONY BROOK UNIVERSITY CEWIT
MILLS POND ROAD
GYRODYNE, LLC
AERIAL MAP
CAMERON ENGINEERING & ASSOCIATES, LLP
177 Crossways Park Drive, Woodbury, NY 11797 T: (516) 827-4900
45 West 36th Street, 3rd Floor, New York, NY 10018 T: (212) 324-4000
303 Tarrytown Road, 1st Floor, White Plains, NY 10603 T: (914) 721-8300
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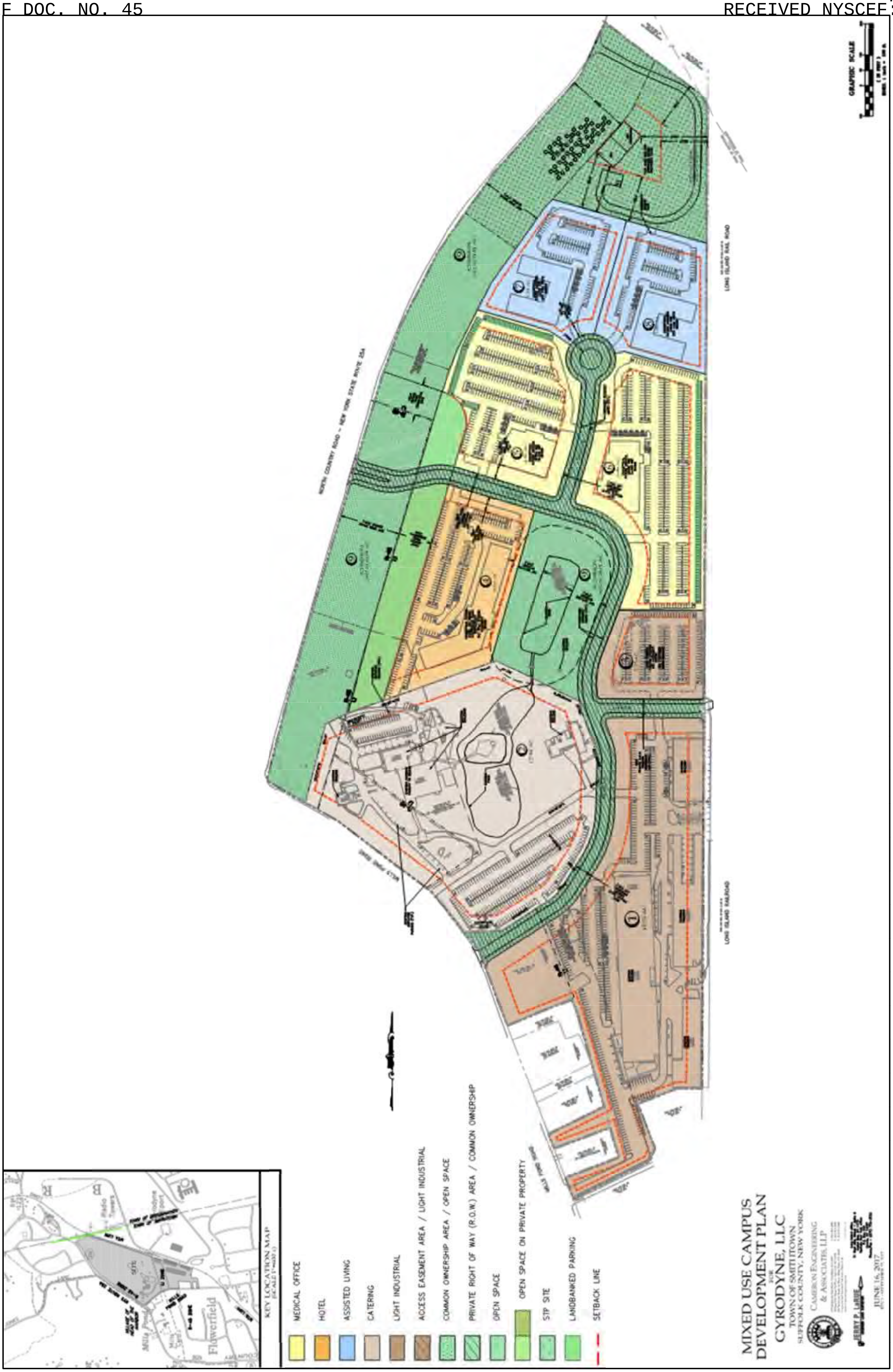
NORTH COUNTRY ROAD – NEW YORK STATE ROUTE 25A
LONG ISLAND RAIL ROAD
LONG ISLAND RAILROAD
GRAPHIC SCALE
KEY LOCATION MAP
Flowerfield
MEDICAL OFFICE
HOTEL
ASSISTED LIVING
CATERING
LIGHT INDUSTRIAL
ACCESS EASEMENT AREA / LIGHT INDUSTRIAL
COMMON OWNERSHIP AREA / OPEN SPACE
PRIVATE RIGHT OF WAY (R.O.W.) AREA / COMMON OWNERSHIP
OPEN SPACE
OPEN SPACE ON PRIVATE PROPERTY
STP SITE
LANDBANKED PARKING
SETBACK LINE
MIXED USE CAMPUS
DEVELOPMENT PLAN
FOR
GYRODYNE, LLC
TOWN OF SMITHTOWN
SUFFOLK COUNTY, NEW YORK
CAMERON ENGINEERING & ASSOCIATES, LLP
JUNE 16, 2017

7015 1520 0001 5648 0371

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Sent To Dr. James Grossane

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PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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& ASSOCIATES, L.L.P.

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American Council of Engineering Companies

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Associates
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Richard J. Zapolski, Jr., P.E.

April 19, 2019

Dr. James Grossane, Ed. D., Superintendent of Schools
Smithtown Central School District
26 New York Avenue
Smithtown, New York 11787
Sent via Certified Mail

Re: Gyrodyne LLC property: east side of Mills Pond Road between North Country Road and LIRR
Proposed Subdivision - Informational Letter
CE 338 A

Dear Dr. Grossane:

This is an informational letter for the District about a proposed subdivision at the 74.98-acre Gyrodyne LLC property on the southeast corner of Mills Pond Road and North Country Road/Route 25A. Cameron Engineering & Associates, LLP is conducting a study of the potential impacts of this proposed subdivision.

The subdivision will have no residential uses that might generate school-aged children, making this project a net positive for the Smithtown Central School District.

<u>Retain existing uses:</u> Light industrial buildings and the Flowerfield Celebrations catering hall

<u>New uses associated with the subdivision</u>:

- 150-room hotel
- 130,000 s.f. of medical office space
- 220 assisted living units
- A wastewater treatment plant plus open space, interior roads, vegetation, and streetlighting

Should you have any questions or require additional information, please feel free to contact me at (516) 224-5227. Thank you.

Very truly yours,

David Tepper

David Tepper, AICP
Planner

Enclosures:
Aerial/Location Map
Preliminary Development Exhibit

CAMERON ENGINEERING
& ASSOCIATES, L.L.P.

177 Crossways Park Drive, Woodbury, NY 11797, (516) 827-4900
45 West 36th Street, Third Floor, New York, NY 10018, (212) 324-4000
303 Old Tarrytown Road, 1st Floor, White Plains, NY 10603, (914) 721-8300

Active Member of ACEC New York

June 19, 2018

Dr. James Grossane, Ed. D., Superintendent of Schools
Smithtown Central School District
26 New York Avenue
Smithtown, New York 11787
Sent by email to JGrossane@smithtown.k12.ny.us

Re: Gyrodyne LLC property: east side of Mills Pond Road between North Country Road and LIRR
Proposed Subdivision - Informational Letter
CE 338 A

Dear Dr. Grossane:

This is an informational letter for the District about a proposed subdivision at the 74.98-acre Gyrodyne LLC property on the southeast corner of Mills Pond Road and North Country Road/Route 25A. Cameron Engineering & Associates, LLP is conducting a study of the potential impacts.

The subdivision will have no residential uses that might generate school-aged children, making this project a net positive for the Smithtown Central School District.

Retain existing uses: Light industrial buildings and the Flowerfield Celebrations catering hall
New uses associated with the subdivision:

- 150-room hotel, 150-seat restaurant, 500-seat conference center, 10,000 s.f. day spa/fitness center
- 130,000 s.f. of medical office space in two buildings
- 220 assisted living units in two buildings
- A wastewater treatment plant plus open space, interior roads, vegetation, and streetlighting

Should you have any questions or require additional information, please feel free to contact me at (516) 224-5224. Thank you.

Very truly yours,

Rebecca Goldberg

Rebecca Goldberg, P.E.
Senior Project Manager

Enclosures:
Aerial/Location Map
Preliminary Subdivision Map

K:\C300-361\CE 338A\0 - Flowerfield Subdivision\DEIS\Appendix B - Correspondence\Community Service Letters\L 06-19-18 School.docx

GYRODYNE, LLC
AERIAL MAP

CAMERON ENGINEERING & ASSOCIATES, LLP

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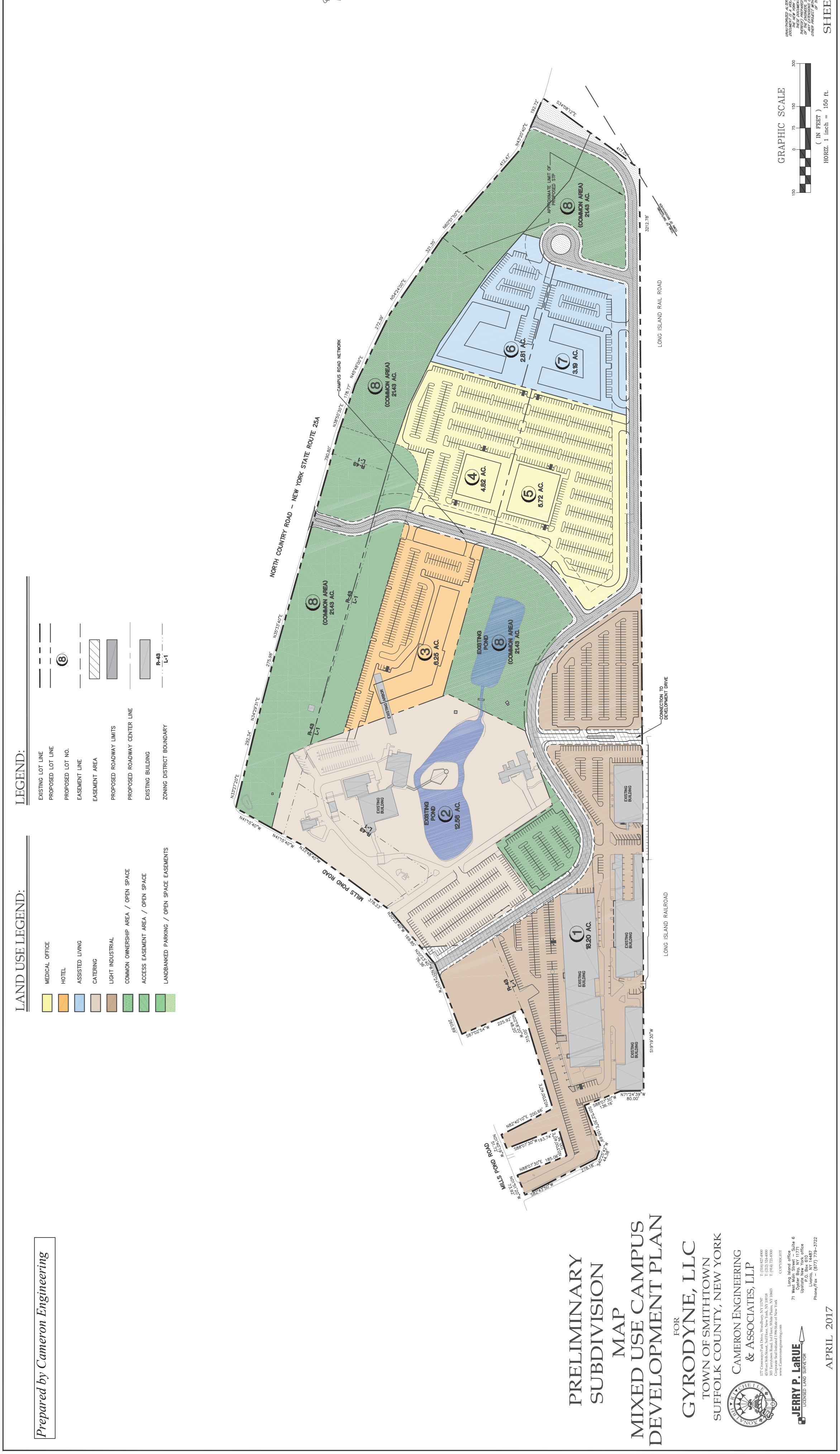
PRELIMINARY SUBDIVISION MAP
MIXED USE CAMPUS DEVELOPMENT PLAN
FOR
GYRODYNE, LLC
TOWN OF SMITHTOWN
SUFFOLK COUNTY, NEW YORK
CAMERON ENGINEERING & ASSOCIATES, LLP
JERRY P. LaRUE
APRIL 2017
Prepared by Cameron Engineering
LAND USE LEGEND:
MEDICAL OFFICE
HOTEL
ASSISTED LIVING
CATERING
LIGHT INDUSTRIAL
COMMON OWNERSHIP AREA / OPEN SPACE
ACCESS EASEMENT AREA / OPEN SPACE
LANDBANKED PARKING / OPEN SPACE EASEMENTS
LEGEND:
EXISTING LOT LINE
PROPOSED LOT LINE
PROPOSED LOT NO.
EASEMENT LINE
EASEMENT AREA
PROPOSED ROADWAY LIMITS
PROPOSED ROADWAY CENTER LINE
EXISTING BUILDING
ZONING DISTRICT BOUNDARY
GRAPHIC SCALE
(IN FEET)
1 inch = 150 ft.
NORTH COUNTRY ROAD - NEW YORK STATE ROUTE 25A
MILLS POND ROAD
LONG ISLAND RAIL ROAD
LONG ISLAND RAILROAD
CAMPUS ROAD NETWORK
CONNECTION TO DEVELOPMENT DRIVE
APPROXIMATE LIMIT OF PROPOSED STP
1 15.20 AC.
2 12.56 AC.
EXISTING POND
3 8.25 AC.
4 4.82 AC.
5 5.72 AC.
6 2.81 AC.
7 3.19 AC.
8 (COMMON AREA) 21.43 AC.
EXISTING BUILDING
R-43 L-1
SHEET OF

NYSDOT

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

ANDREW M. CUOMO
Governor

PAUL A. KARAS
Acting Commissioner

JOSEPH T. BROWN, P.E.
Regional Director

July 2, 2018

Rebecca Goldberg, P.E., LEED AP
Transportation Engineer
CAMERON ENGINEERING & ASSOCIATES, LLP
177 Crossways Park Drive
Woodbury, NY 11797

Subdivision of Gyrodyne
Mills Pond Road at NY 25A
Traffic Impact Study
NY25A Saint James, Smithtown
NYSDOT Case #66334P
0800-04000-0200-013003

Ms. Goldberg,

This is in reference to the Traffic Impact Study and Conceptual Traffic Mitigation measures for the Proposed Gyrodyne Subdivision you submitted recently. Please find our responses on the draft documents submitted for comments.

1. Please ensure that all documents submitted for this Major Redevelopment be submitted for formal approval by local Lead Agency.

2. Please have property owners complete Perm33Com application for this Major Commercial Development. See Application link: https://www.dot.ny.gov/divisions/operating/oom/transportation-systems/repository/PERM33-COM_04_15_rev%20040715.pdf

3. Submit application fee of $2000 payable to NYSDOT. Also submit signed PERM51 for reimbursement of NYSDOT costs incurred for this project's Design Review https://www.dot.ny.gov/divisions/operating/oom/transportation-systems/repository/perm51.pdf

4. The project is located within the Long Island Heritage North Shore, is in the designated NY25A State Scenic & Historic Corridor, and is near the historic Mill's Pond House. Conduct a historic & culture screening under Section 106 of the National Historic Preservation Act (NHPA).

5. Provide visualizations for any proposed changes that would be visible from the NY 25A highway corridor.

6. NYSDOT is currently developing the design of NY 25A and Stony Brook Road intersection project with a scheduled letting date of Fall 2022. Any impacts due to this development will need to be coordinated with the NYSDOT and mitigated by this development.

7. The traffic volume diagrams (Figures 6-6 to 6-11 and other similar) have some location mixed up on the map, for example locations 2 and 9.

8. The site entrance at NY 25A should be designed for rights in and rights out only, with the splitter island.

9. The necessary left turn storage length for Westbound Route 25A at Mills Pond Road needs to be evaluated and the proposed intersection design layout adjusted as needed. 50 feet as proposed may not be enough. Same applies for the NB approach. The eastbound right turn lane (or at least a shoulder) would also be desirable.

10. We believe trip distribution assumptions should be reviewed. The future eastbound traffic volumes at Mills Pond Road (1) and at the Site Access 1 (14) appear to be too low. The TIS assumes that there are no future trips assigned for the EB Route 25A traffic accessing the site.

11. Please refer to Pages 8-2 and 8-3, Paragraph 8.3. A second East to North left turn lane from NY 347 to Moriches Road would be desirable. It would be used to access Gyrodyne via northbound Moriches to Mill Pond. Also, there is a typo in this section, change from (Stony Brook Road) to (Moriches Road).

12. Please refer to Page 110, Synchro summary sheet 13 for NY 347 at Stony Brook Road. The cycle length is incorrect. When adding the phase durations together the total was 149.5. The analysis needs to be revised.

13. Comments regarding air quality issues relating to the Traffic Impact Study by Cameron Engineering for this proposed subdivision are as follows:

    a. Page 1-3: If the intersections of NY 25A with Mills Pond Road and with Stony Brook Road are to become signalized as proposed, include an air quality screening for Carbon Monoxide and other pollutants in the Draft EIS, using procedures in the NYSDOT Environmental Manual (TEM). The screening should include years ETC (2020), ETC + 10 (2030), and ETC + 20 (2040). The Traffic Impact Study should extend the traffic volume projections to include 2030 and 2040, so that the project DEIS can include air quality screening results for those years.

    b. Page 1-4: If modifications to signalized intersections on Stony Brook Road that include new turning lanes with traffic queues are proposed, include an air quality screening for Carbon Monoxide and other pollutants in the Draft EIS, using procedures in the NYSDOT TEM. The screening should include years ETC (2020), ETC + 10 (2030), and ETC + 20 (2040). The Traffic Impact Study should extend the traffic volume projections to include 2030 and 2040, so that the project DEIS can include air quality screening results for those years.

    c. Page 3-2: The traffic impact study was extended to the intersections of NY 347 with Moriches Road and with Stony Brook Road. These signalized intersections are about 1.5-2.0 miles from the proposed subdivision location. Air quality levels at these intersections were evaluated earlier as part of the NY 347 Safety and Mobility Project Final Environmental Impact Statement in 2005-07. The evaluation included a Carbon Monoxide (CO) screening for both intersections, and a microscale CO analysis for the intersection of NY 347 and Stony Brook Road, for years 2015, 2025 and 2035. The FEIS concluded that the project would not cause air quality impacts at these location

14. This segment of area of NY25A historically has drainage issues. In part due to a farm's stormwater runoff that it slopes to the south, and the nearby Mill Pond that overflows during heavy rains. The site could potentially flood and the permittee is being made aware of this problem. Provide a detailed drainage analysis of the area and provide for associated drainage mitigation on site, along NY25A, and the surrounding local road network.

The subject case is handled by Mr. Gene Smith. He can be contacted at (631) 952-6028 if you have any questions regarding this matter. Please send all correspondence to his attention.

Thank you for your cooperation concerning this matter.

Very truly yours,

[redacted]

SHAIK A. SAAD, P.E.
Civil Engineer III
Traffic Engineering and Safety

cc: Mr. John A. Schmidt, Assistant Civil Engineer, Highway Department, Town of Brookhaven
Mr. Tullio Bertoli, Commissioner, Planning and Environment, Town of Brookhaven
Ms. Brenda Prusinowski, Deputy Commissioner, Planning and Environment, Town of Brookhaven
Mr. Jon Sullivan, Traffic Engineer I, Division of Traffic Safety, Town of Brookhaven
Mr. Robert Murphy, Superintendent of Highways, Town of Smithtown
Mr. Mitchell Crowley, Director of Traffic & Safety, Town of Smithtown
Mr. David Flynn, Planning Director, Town of Smithtown
Mr. Peter Hans, Sr. Planner, Planning Department, Town of Smithtown

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& ASSOCIATES, LLP

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Kevin M. McAndrew, R.L.A.
Alan J. King, Jr., P.E.

Senior Associate
Glenn DeSimone, P.E., CPE

Associates
Robert E. Wilkinson, P.E.
Steven R. Giammona, P.E.

August 6, 2010

Ms. Karen Taylor
New York State Department of Transportation
250 Veterans Memorial Highway
Hauppauge, NY 11788

Re: Gyrodyne Company of America
Southeast corner of Route 25A and Mills Pond Road, St. James, NY
SCTM No. 0800-04000-0200-4, 13.3,14, and 15
NYSDOT Case No. 07-073 P
CE 338A

Dear Ms. Taylor:

Thank you for meeting with me yesterday to discuss the Gyrodyne application. To recap our discussion, Gyrodyne proposes a mixed single/multi-family age-restricted residential development on property which fronts NYS Route 25A and Mills Pond Road in the Town of Smithtown.

In prior correspondence dated September 30, 2007, NYSDOT had required the following access plan:

- Install a traffic signal at the intersection of Route 25A and Mills Pond Road
- Main site access on Mills Pond Road
- A "rights in, rights out only" driveway on Route 25A

Recently, the Town of Smithtown has proposed a different access plan (access solely on Route 25A, and no access on Mills Pond Road) and suggested that we meet with the Department.

Our client is willing to proceed with the Gyrodyne project containing either access scenario.

As discussed yesterday, please provide our office with the Department's suggested access for this project.

Should you have any questions or require additional information, please do not hesitate to contact me at (516) 827-4900 extension 264.

Very truly yours,

Alan J. King, Jr., P.E., LEED AP
Partner

AK/lb
cc: Peter Pitsiokos, Gyrodyne Company of America
K:\C300-349\CE 338A\Traffic\Corres10\L-Taylor 8-5-10 AK.doc

EXCELSIOR

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
STATE OFFICE BUILDING
250 VETERANS MEMORIAL HIGHWAY
HAUPPAUGE, N.Y. 11788-5518

3C: Alan

SUBIMAL CHAKRABORTI, P.E.
REGIONAL DIRECTOR

STANLEY GEE
ACTING COMMISSIONER

October 29, 2010

Mr. Alan King Jr., P.E.
Transportation Department Manager
Cameron Engineering & Associates, LLP
100 Sunnyside Boulevard, Suite 100
Woodbury, NY 11797

RECEIVED
NOV - 2 2010
CAMERON ENGINEERING
& ASSOCIATES, LLP

Gyrodyne Company of America
Route 25A, St. James
SCTM 0800-04000-0200-4, 13.3, 14, & 15
Our Case No. 07-073 P

Dear Mr. King:

This is in response to your letter of August 6, 2010 in regards to the subject site. We maintain our position in regards to site access plan as described in our September 20, 2007 letter (enclosed). The access for this site should be as follows:

- Install a traffic signal at the intersection of Route 25A and Mills Pond Road
- Main site access is to be Mills Pond Road
- A "rights in / rights out only" driveway on Route 25A

A Highway Work Permit from us is necessary prior to performing any work within the Route 25A right-of-way. Please submit detailed site plans (six (6) sets) to our office to continue the Highway Work Permit application process.

In all future correspondence, please refer to the subject case number. The plans must also include the County tax map number.

Review of the subject material is being coordinated by Ms. Karen Taylor. She can be contacted at (631) 952-6014 if you have any questions regarding this matter. Please send all correspondence to her attention.

Thank you for your cooperation.

Very truly yours,

SHAIK A. SAAD, P.E.
Civil Engineer III
Traffic Engineering and Safety

cc: Mr. Daniel Ryan, Superintendent of Highways, Town of Smithtown
Mr. Mitchell Crowley, Director of Traffic & Safety, Town of Smithtown
Mr. Francis DeRubeis, Planning Director, Town of Smithtown
Mr. Mark Riley, Engineering Department, Town of Smithtown

SS:KT:sme

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REGION TEN
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HAUPPAUGE, NEW YORK 11788
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SUBIMAL CHAKRABORTI, P.E.
REGIONAL DIRECTOR

ASTRID C. GLYNN
COMMISSIONER

September 20, 2007

Mr. James W. O'Callaghan, P.E.
Senior Transportation Manager
Cameron Engineering & Associates, LLP
100 Sunnyside Blvd, Suite 100
Woodbury, NY 11797

Your March 30, 2007 submission
Gyrodyne Co. of America
Route 25A, Smithtown
Suffolk No. SM-07-01
SCTM 0800-04000-0200-4, 13.3, 14 & 15
Our Case No.07-073 P

Dear Mr. O'Callaghan:

This is in regard to the concept site plans for the referenced project which were submitted to us for review. Our preliminary comments are as follows:

1. In recent years, many states have employed access management as a major technique to address conflicts between through traffic and that generated by developments. The goals of access management are to limit the number of access points, separate conflict points and remove turning traffic from through movements. New York State is utilizing this technique to minimize impacts to State highways. We recommend, therefore, that cross access to this site be obtained from adjacent developments. If this is not presently possible, it should be shown on the plans for implementation as part of future redevelopment.

2. Please add a note to the plans stating that NYSDOT currently has a project planned for the subject area of Route 25A. It is PIN 0327.95 (NY25A & Mills Pond Road Drainage Improvement) which has a letting date of November 2009. This project should coordinate with the DOT project.

3. We concur with County of Suffolk that the layout of this development should be redesigned so that the main entrance to this property is into Mills Pond Road, especially since a new traffic signal at the intersection of Mills Pond Road and Route 25A is proposed in the Traffic Study.

4. The developer should install the proposed signal on Route 25A at Mills Pond Road. This intersection should be reconfigured to accommodate the left turning vehicles to and from the site via Mills Pond Road. The proposed entrance / exit driveway on Route 25A should operate as a "right turns in" and "right turns out" only. Left turn lane into the property will not be permitted.

5. We note that during heavy rainstorms, Mills Pond swells and completely floods Route 25A which requires road closures and extensive pumping across private property. We would like to see this issue addressed under this proposal.

6. It is mentioned in the study that the redeveloped site will have three (3) access points and an emergency access on Route 25A. However, the Site Master Plan only shows two (2) access points, one on Route 25A and the other on Mills Pond Road, in addition to one (1) Emergency Access Gate. It looks, according to the study, as if the back of the site may be used by community residents to get to the SUNY campus. If so, coordination with the LIRR will be needed.

7. With the addition of new lanes and pavement markings, Maintenance and Protection of Traffic (MPT) schemes must be provided, to accommodate these operations.

8. Any utility work proposed in State Highway right-of-way will require separate application and submission of plans (installation details, restoration details and Maintenance and Protection of Traffic plan - all referenced to NYSDOT specification item numbers and the Manual of Uniform Traffic Control Devices) to our ***Central Islip*** Maintenance facility. The applicant may contact Mr. ***Gary Hills at (631) 231-6860*** for further directions regarding Utility Highway Work Permit (HWP) applications. The applicant should be made aware that utility HWP issuance is subject to issuance of the HWP required for site work.

9. Please submit eight (8) sets of detailed site plans, including all items outlined in our "Site Plan Requirements Check List" (enclosed).

Review of the subject material is being coordinated by Ms. Karen Taylor. She can be contacted at (631) 952-6014 if you have any questions regarding this matter. Please send all correspondence to her attention. Kindly refer to the subject case number and County tax map number in all correspondence.

Very truly yours,

SHAIK A. SAAD, P.E.
Civil Engineer III
Traffic Engineering and Safety

cc: Mr. Andrew P. Freleng, AICP, Chief Planner, Department of Planning
(Suffolk County Department of Planning, PO Box 6100, Hauppauge, NY 11788-0099)
Mr. Daniel Ryan, Superintendent of Highways, Town of Smithtown
Mr. John Moore, Traffic Engineer, Town of Smithtown
Mr. Francis DeRubeis, Director, Planning Department Town of Smithtown
Mr. Mark Riley, Engineering Department, Town of Smithtown
Mr. Robert Bonerba, Chief Building Official, Smithtown Building Department

SAS:KT:JMN

SITE PLAN REQUIREMENTS CHECKLIST:

X A. Location and dimensions of existing highway pavement, curb, sidewalk, median, median openings, guide rail, utilities, signs (including size and text), pavement markings, bus stops, overhead and underground traffic signal equipment, right-of-way lines, controlled access lines and property lines.

X B. Existing and proposed buildings, appurtenances and any drive-in windows. Development plans must account for full build-out of site.

X C. Location and dimensions of all proposed utility connections, both subsurface and overhead, for all site development. All details must account size, depth & location of proposed utilities, as well as excavation pits, construction access, and erosion control. All plans must be referenced to AS-BUILTS for all DOT Features. Installations are to be designed in accordance with 17 NYCRR Part 131, Accommodation of Utilities Within State Highway Right-of-Way, and NYSDOT Highway Design Manual Appendix13b.

X D. Design features, referencing the latest edition of the NYS Standard Specifications, to be incorporated in proposed work:

- X 1. Driveway pavement type and dimensions.
- X 2. Radii of driveway returns and other points of curvature.
- X 3. Driveway grades or profiles, indicating low point on private property.
- X 4. Angle of driveways relative to roadway center line.
- X 5. Dimensions of roadside control islands and driveway medians.
- X 6. Dimensions of curb and sidewalk relative to pavement edge.
- X 7. Details of internal traffic circulation, including proposed signs, pavement markings and traffic signal equipment.
- X 8. North arrow and scale on each applicable sheet.

X E. Size, type and grade of existing and proposed drainage features. All runoff must be contained on site. Runoff onto the NYS Right of Way will not be permitted.

X F. Distance from each existing and proposed driveway to each adjacent driveway and cross street, including adjacent property lines and streets and driveways opposite the site.

X G. Maintenance and protection of traffic plans designed in accordance with NYSDOT MUTCD and NYSDOT Specifications. The plan must include the note "All lanes must be open to traffic before 10 AM and after 3 PM. No lane closings are permitted on weekends or holidays. Nighttime lane closings will not be permitted without prior approval from the State Permit Inspector."

__H. Traffic signal plans must be shown on a separate sheet including pavement markings, turn lanes, driveways, sidewalks and pedestrian ramps, crosswalks, buildings, poles, power supply, pullboxes, conduit, controller, head layout including face numbering, detection, right-of-way lines and signing. All work must be referenced to the latest edition of the NYS Standard Specifications. The plans must show existing features, such as drainage and utilities, which may conflict with the proposed signal. Tables of Operations, Clearances, Switchpacks, Input Wiring and Loop Wiring must be included along with a Phasing Diagram and Estimate of Quantities.

X I. Aerial photograph of the site and environs.

X J. Beginning and ending reference markers.

X I. Plan size should not be larger than 24x36.

Appendix C:

Existing Covenants, Restrictions, and Easements

913-48

Northport, N.Y.; that he is and then was acquainted with Wm. B.Codling, C.E.Robertson & Edwin N. Rowley, and knew them to be the individuals described in and who executed the foregoinginstrument,and that he,said subscribing witness,was present andsaw them execute the same,and that he,said witness,thereupon subscribed hisname as a witness thereto. L.S. Thomas A. Powell, Notary Public, Suffolk County, N.Y.

Recorded 24 August 1915 @ 8 A.M.

James F. Richardson Clerk

L 913 @ 48

THIS AGREEMENT, made this twenty first day of July, 1911, between JOHN LEWIS CHILDS, partyof the first part, and the LONG ISLAND LIGHTING COMPANY, a domestic corporation, hereinafter called the "ELECTRIC LIGHT COMPANY", party of the second part. WITNESSETH, that in consideration of the sum of one ($1.00) dollar by each to the other in hand paid, the receipt whereof is hereby mutually acknowledged,and of the covenants and agreements herein contained,the parties hereto,for themselves,their successors and assigns,hereby covenant and agree as follows: FIRST. The partyof the first part grants to the Electric Light Company the right to erect and maintain lines or wire for the transmission of electric current for light,heat and power, including the necessary poles,cross arms,wires, cables,guys,anchors and appurtenances,upon and alongthe private road leading from a point situated about three hundred (300) feet more or less, north of the Oxhead Road where the same crosses the Stony Brook to Ronkonkoma Road;thence in a westerly direction to what is commonly called McKittrick's Crossing. SECOND. The Electric Light Company hereby agrees to erect only straight, selected poles and that all work necessary to erect and maintain the hereinbefore mentioned lines shall be done under the direction and supervision of the party of the first part, or his agent. THIRD. The Electric Light Company agrees not to place upon any pole more than two cross arms for its wires andcables. FOURTH. The Electric Light Company further agrees that in the event of the property being sold, transferred or in any way disposed of by the party of the first part to transfer the poles,wires and appurtenances to the nearest street or highway leading across the property in the hereinbefore mentioned directions as shall be designated by the then owner or owners, or at the option of the partyof the first part in case of such sale or transfer,the Electric Light Company hereby agrees to either transfer

See release of Electric Easement L 6013 @ 339 (As to property.)

said poles, wires and appurtenances to along the southerly boundary line of the property of the party of the first part or purchase a strip of land ten (10) feet wide along such southern boundary line at a pro rata price per acre, which was paid or received for such sale, on which to place such construction. FIFTH. The Electric Light Company agrees to assume all risk or liability for damage by reason of said pole line, wires etc., being constructed across said property. IN WITNESS WHEREOF, The party of the first part has hereunto set his hand and seal and the party of the second part has hereunto subscribed its nameby its District Manager, who is duly authorized thereto by its Board of Directors and affixed hereto its corporate seal by like order.

JOHN LEWIS CHILDS, L.S.

LONG ISLAND LIGHTING COMPANY

(L.S.)

BY N.L.PIDGEON, District Manager.

State of New York, County of Nassau, SS: On this 19 day of July, 1911, before me personally appeared John Lewis Childs, to me known and known to me to be the individual described in and who executed the foregoing instrument, and he duly acknowledged to me that he executed the same. Arthur H. Goldsmith, Notary Public, Nassau County, N.Y. State of New York, County of Suffolk, SS: On this 21 day of July, 1911, before me personally appeared N.L.Pidgeon, who being by me duly sworndid depose and say that he resides at Northport, New York; that he is the District Manager of the Long Island Lighting Company, the corporation described in and which executed the foregoing instrument; that he knew the seal of the said corporation; that the seal affixed to said was such corporate seal and was so affixed by order of the Board of Directors. [illegible] Powell, Notary Public, Suffolk Co., N.Y.

Recorded 24 August 1915 @ 8 A.M.

James F. Richardson

~~RECEIVED from the NORTH SHORE ELECTRIC LIGHT AND POWER COMPANY, one dollars, in consideration of which I hereby grant unto said Company, its successors and assigns, the right, privilege and authority to construct, re-construct, operate and maintain, its transmission lines for conducting electricity, including such poles, cross arms, wires, cables, guys, stubs, anchors, brace poles and appurtenances thereto as said Company may deem necessary or proper therefor, along the highways adjoining and upon, over and along the property which I claim to own, or in which I have any interest in the Town of Brookhaven, County of Suffolk, State of New York, with the right to trim from time to time, any trees along said line necessary to keep the wires cleared at least eighteen inches and to attach to trees on said highway or said property the necessary guy wires, and in full satisfaction and payment thereof. WITNESS my hand and seal this 17th day of May 1911, at Stony Brook. (Post office address).~~

L 913
p 97

6013 p 339

LIBER 6013 PAGE 339

121823

THIS AGREEMENT made this 9th day of August, 1966, between the LONG ISLAND LIGHTING COMPANY, a New York Corporation duly organized and existing under and by virtue of the Laws of the State of New York, having an office at 250 Old Country Road, Mineola, Nassau County, New York, and SPRUCEDALE BUILDING CORPORATION, a domestic corporation having a place of business at 6090 Jericho Turnpike, Commack, New York and LEVITT AND SONS, INCORPORATED, a domestic corporation having a place of business at 325 Nesconset Highway, Hauppauge, New York,

WHEREAS by virtue of a certain agreement dated July 21, 1911 and recorded in the Suffolk County Clerk's Office on August 24, 1915, in Liber 913 of Conveyances at Page 48, JOHN LEWIS CHILDS granted to the LONG ISLAND LIGHTING COMPANY certain electric transmission easements as described in said easement agreement, said easements being over and along property situate at Stony Brook, in the Towns of Brookhaven and Smithtown, Suffolk County, New York and lying between Stony Brook or Gould Road on the East and the Rail Road crossing formerly known as McKittricks Crossing on the west, and,

WHEREAS by Mesne Conveyances title to a portion of the lands affected by said grant of easement has been acquired by SPRUCEDALE BUILDING CORPORATION, LEVITT AND SONS, INCORPORATED and others and,

WHEREAS, the parties hereto desire that the portion of said land and easement as set forth in said agreement hereinabove referred to owned by them be released from said easement and the parties hereto have agreed that the LONG ISLAND LIGHTING COMPANY release said portion of the easements as granted by said agreement dated July 21, 1911 as hereinabove referred to.

NOW THEREFORE, in consideration of the sum of One Dollar

LIBER 6013 PAGE 340

($1.00) and other good and valuable considerations, the receipt of which is hereby acknowledged, the LONG ISLAND LIGHTING COMPANY does hereby release, abandon and surrender to said SPRUCEDALE BUILDING CORPORATION and LEVITT AND SONS, INCORPORATED, that portion only of said easement rights obtained by LONG ISLAND LIGHTING COMPANY by virtue of said agreement hereinabove referred to dated July 21, 1911 and recorded as aforesaid, said portion being hereby released being that portion of said easement lying between Stony Brook or Gould Road on the east and the boundary line between the Town of Smithtown and the Town of Brookhaven on the west.

It is the intention of LONG ISLAND LIGHTING COMPANY to release only the said portion of the easement granted by said agreement dated July 21, 1911, it being expressly agreed that the remaining portion of said easement lying west of said boundary line between the Town of Smithtown and Town of Brookhaven shall remain in full force and effect.

IN WITNESS WHEREOF, the LONG ISLAND LIGHTING COMPANY has caused these presents to be signed on the day and year first above written.

ATTEST: LONG ISLAND LIGHTING COMPANY

By ~~Secretary~~ Asst Treasurer By Vice President

STATE OF NEW YORK, }ss.:
COUNTY OF

On the day of , one thousand nine hundred and before me came

to me known to be the individual described in, and who executed the foregoing instrument, and acknowledged that he executed the same.

Notary Public

STATE OF NEW YORK, }ss.:
COUNTY OF

On the day of , one thousand nine hundred and before me came

to me known to be the individual described in, and who executed the foregoing instrument, and acknowledged that he executed the same.

Notary Public

STATE OF NEW YORK, }ss.:
COUNTY OF

On the day of , one thousand nine hundred and before me came , to me known, who, being by me duly sworn, did depose and say that he resides at in ; that he is the of the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of of said corporation, and that he signed h name thereto by like order.

Notary Public

STATE OF NEW YORK, }ss.:
COUNTY OF NASSAU

On the 4th. day of August, one thousand nine hundred and sixty-six before me came CHARLES R. PIERCE, to me known, who, being by me duly sworn, did depose and say that he resides at 21 Wayside Lane, Lloyd Harbor, in New York ; that he is ~~the~~ a Vice President of LONG ISLAND LIGHTING COMPANY the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that he signed his name thereto by like order.

RECORDED
AUG 17 1966
@10-26 A.M.
NORMAN E. KLIPP
Clerk of Suffolk County

Charles H. Streater
Notary Public
CHARLES H. STREATER
Notary Public, State of New York
No. 30-9218500
Qualified in Nassau County
Commission Expires March 30, 196

4898 482

LIBER 4898 PAGE 482

Fee
Receipt

RESTRICTIVE COVENANT

WHEREAS, by petition verified June 28, 1960, the undersigned, GYRODYNE COMPANY OF AMERICA, INC., a corporation having offices at Flowerfield, Town of Smithtown, Suffolk County, New York, made application to the Town Board of the Town of Smithtown for a change of zone of certain of its real property located in Flowerfield, Town of Smithtown, Suffolk County, New York, from "A" Residence District classification to "G" Industrial District (Light Industrial) classification, as defined in the Building Zone Ordinance and Map of the Town of Smithtown, and

WHEREAS, after public hearing held upon said application on July 12, 1960, the Town Board of the Town of Smithtown, by resolution duly adopted on September 15, 1960, granted the application of said GYRODYNE COMPANY OF AMERICA, INC. to the extent that the following described real property was placed within the "G" Industrial District (Light Industrial) zone and classification as defined by the Building Zoning Ordinance and Map of the Town of Smithtown:

ALL that certain plot, piece or parcel of land situate lying and being at Flowerfield in the Town of Smithtown, Suffolk County, New York more particularly bounded and described as follows:

BEGINNING at a point formed by the intersection of the northerly line of land now or formerly of Annie E. Newton with the westerly line of the Long Island Railroad right-of-way;

Thence, along said northerly line of Annie E. Newton South 82°43'50" West a distance of 266.14 feet;

Thence, North 2°57'50" East a distance of 188.10 feet along the easterly boundary of land now or formerly of Semerad;

Thence, North 3°00'40" East a distance of 181.70 feet along the easterly boundary of land now or formerly of Lampe;

Thence, North 2°01'45" East a distance of 252.76 feet along the easterly boundary of land now or formerly of Robert Elderkin;

Thence, North 2°11'50" West a distance of 265 feet along the easterly boundary of land now of Jankowski;

Thence, North 18°58'50" West a distance of 349.88 feet;

Thence, North 0°28'20" West a distance of 678.25 feet to the southeasterly corner of land now or formerly of Louise Heisler;

Thence, along the northeasterly boundary of land now or formerly of Louise Heisler North 53°20'30" West a distance of 321.62 feet to the southerly side of North Country Road;

Thence along the southerly side of North Country Road the following six courses and distances:

1) North 35°33'40" East a distance of 790.80 feet

2) North 38°50'30" East a distance of 178.77 feet

3) North 45°48' East a distance of 272.39 feet

4) North 54°24' East a distance of 321.35 feet

5) North 60°51'50" East a distance of 412.47 feet

6) North 43°20'40" East a distance of 192.72 feet;

Thence, South 34°06'20" East a distance of 390.15 feet to a point on a common boundary line between the Town of Smithtown and the Town of Brookhaven;

Thence, along said common boundary line South 11°46' 40" East a distance of 40.94 feet to a point on the westerly line of the Long Island Railroad right-of-way;

Thence, along said westerly line of the Long Island Railroad right-of-way the following two courses and distances:

1) South 19°19'30" West a distance of 3,247.72 feet

2) Along the arc of a curve bearing to the right having a radius of 1,399.14 feet a distance of 136.20 feet to the point or place of beginning, and

WHEREAS, the said resolution of the Town Board of the Town of Smithtown adopted on September 15, 1960, and the change of zone granted thereby were made upon two conditions, and

WHEREAS, the first of said condition requires that GYRODYNE COMPANY OF AMERICA, INC. execute and cause to be recorded in the Suffolk County Clerk's Office, a restrictive covenant providing that GYRODYNE COMPANY OF AMERICA, INC., its successors and assigns will not construct, erect or place any building on certain portions of its property frontage upon North Country Road, and

WHEREAS, the second of said conditions requires that any parking lot or parking area constructed by GYRODYNE COMPANY OF AMERICA, INC. upon certain portions of its property be screened from certain adjoining residential properties,

NOW, THEREFORE, in compliance with the conditions contained in the aforesaid resolution of the Town Board of the Town of Smithtown adopted on September 15, 1960, as aforesaid, GYRODYNE COMPANY OF AMERICA, INC. covenants:

1. That, at no time, will GYRODYNE COMPANY OF AMERICA, INC., its successors or assigns construct, erect or place any building on that portion of its real property located at Flowerfield, Town of Smithtown, New York, bounded:

a) on the north by the southerly line of North Country Road (State Route 25A);

b) On the south by an imaginary line drawn parallel to and two hundred (200) feet southerly from the southerly line of North Country Road (State Route 25A);

c) on the west by land now or formerly of Heisler; and

d) on the east by the current easterly boundary of property of GYRODYNE COMPANY OF AMERICA, INC.

2. That any parking lot or parking area constructed by GYRODYNE COMPANY OF AMERICA, INC., its successors or

assigns, within one hundred (100) feet of the easterly boundary of lands now or formerly of Jankowski, Elderkin, Lampe and Semerad shall be screened from said properties by the installation and maintenance of ten (10) feet of lawn area immediately east of said easterly line of said properties, followed by the installation and maintenance of a natural screen of Norway Spruce immediately east of said ten (10) feet of lawn area and followed by the installation and maintenance of a five (5) foot area of lawn between the said Norway Spruce and the westerly most portion of the improved surface of the parking area, said combined lawn and planting area to be of a width equal to that of said parking area.

IN WITNESS WHEREOF, the said GYRODYNE COMPANY OF AMERICA, INC. has caused its corporate seal to be hereunto affixed and these presents to be signed by the duly authorized officer this 26th day of October, 1960.

GYRODYNE COMPANY OF AMERICA, INC.

By [signature]
Peter J. Papadakos, President

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STATE OF NEW YORK)
) SS:
COUNTY OF SUFFOLK)

On the 26th day of October, 1960, before me personally came PETER J. PAPADAKOS, to me known, who, being by me duly sworn, did depose and say that he resides at Mill Pond Road, St. James/field, New York that he is the President of the GYRODYNE COMPANY OF AMERICA, INC., the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation, that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the board of directors of said corporation, and that he signed his name thereto by like order.

John V. N. Klein
JOHN V. N. KLEIN

JOHN V. N. KLEIN
Notary Public, State of New York
No. 52-7294035. Suffolk County
Term Expires March 30, 1962

RECORDED
OCT 31 1960
@ 10:40 A.M.
NORMAN E. KLIPP
Clerk of Suffolk County

Fee 32.50
Receipt # [illegible]

A G R E E M E N T

-between-

GYRODYNE COMPANY OF AMERICA, INC., THE CHASE MANHATTAN BANK, OLIVER HAZARD PERRY, AUDREY PERRY BURNIER, MATHILDE E. PERRY, TOWN OF SMITHTOWN and INCORPORATED VILLAGE OF HEAD OF THE HARBOR.

Dated: April 28, 1964.

MEMORANDUM OF AGREEMENT, made this 28th day of April, 1964, between GYRODYNE COMPANY OF AMERICA, INC., a corporation having its principal office and place of business at Flowerfield, Town of Smithtown, County of Suffolk, State of New York, FIRST PARTY; THE CHASE MANHATTAN BANK, a banking corporation having its principal office and place of business at One Chase Manhattan Plaza, Borough of Manhattan, City and State of New York, individually and as agent under Credit Agreement dated as of December 30, 1960, between Gyrodyne Company of America, Inc., and The Chase Manhattan Bank, The Franklin National Bank of Long Island, New York Business Development Corporation and Bank of Smithtown, as amended by a supplemental agreement dated August 10, 1961, SECOND PARTY; OLIVER HAZARD PERRY, of 212 Dawley Road, Fayetteville, New York, and AUDREY PERRY BURNIER, of 3543 Third Avenue, San Diego, California, THIRD PARTIES; MATHILDE L. PERRY of St. James, New York, FOURTH PARTY; the TOWN OF SMITHTOWN, FIFTH PARTY, and the INCORPORATED VILLAGE OF HEAD OF THE HARBOR, SIXTH PARTY;

W I T N E S S E T H:

WHEREAS, the Town Board of the Town of Smithtown by resolution adopted September 15, 1960 granted an application of FIRST PARTY to the extent that certain property owned by FIRST PARTY within the boundaries of which the property of FIRST PARTY hereinafter described is situated was reclassified by amendment of the Building Zone Ordinance and Map of the Town of Smithtown; and

WHEREAS, as a condition to the change of zone effected by said resolution of September 15, 1960 the Town of Smithtown required FIRST PARTY to execute and record a certain restrictive covenant recorded in the Smithtown County Clerk's Office on October 30, 1960 in Liber 4898, cp. 482; and

WHEREAS, thereafter an action was instituted in the Supreme Court, Suffolk County, entitled "John M. Perry, Mathilde L. Perry, Jean M. Dougherty, Louise Heisler, Katherine Jankowski, Neil Garguilo, Mary Garguilo, Robert B. Elderkin, Martha Elderkin, Janet S. Elderkin, Marie A. Bauer, John G. Sweek, Phyllis Sweek, Jay Gaines, Marcia Gaines, Benjamin Yablonski, Edwin Yablonski, Carol L. Strauss, Mildred Smith, Josephine Smith, Malcolm E. Smith and the Incorporated Village of Head of the Harbor, Plaintiffs, -against- Town of Smithtown and Gyrodyne Company of America, Inc., Defendants.", Index Number 73281/1961, praying judgment:-

(a) Declaring the amendment of the Building Zone Ordinance and Official Zoning Map of the Town of Smithtown, adopted September 15, 1960, unconstitutional, illegal and ineffective;

(b) Restraining the Town of Smithtown and its officers, agents and employees from doing any acts pursuant thereto;

(c) Restraining defendant Gyrodyne Company of America, Inc., from devoting any of its real property described in the resolution of the Town Board adopted September 15, 1960 to any uses not permitted by the Building Zone Ordinance of the Town of Smithtown in an "A" Residential District;

(d) Granting plaintiffs such other and further relief as may be just and proper together with the costs and disbursements of the action;

and,

WHEREAS, SECOND PARTY, individually and as agent aforesaid is the holder of bonds of FIRST PARTY, secured by mortgages upon the property hereinafter described, which mortgages are dated and recorded respectively as follows:

Gyrodyne Company of America, Inc., to The Chase Manhattan Bank, individually and as agent under Credit Agreement dated as of December 30, 1960 between Gyrodyne Company of America, Inc., and The Chase Manhattan Bank, The Franklin National Bank of Long Island, New York Business Development Corporation and Bank of Smithtown; mortgage dated January 6, 1961, recorded January 10, 1961 in the office of the Clerk of Suffolk County in Liber 3561, mp. 389;

Gyrodyne Company of America, Inc. to The Chase Manhattan Bank, individually and as agent under Credit Agreement dated as of December 30, 1960 between Gyrodyne Company of America, Inc., and The Chase Manhattan Bank, The Franklin National Bank of Long Island, New York

Business Development Corporation and Bank of Smithtown as amended by Supplemental Agreement dated August 19, 1961; mortgage dated August 18, 1961, recorded August 22, 1961 in the office of the Clerk of Suffolk County in Liber 3688, mp. 21;

and,

WHEREAS, the latter mortgage dated August 18, 1961 by language therein contained was consolidated with the mortgage recorded in Liber 3561, mp. 389 to form a single first mortgage lien; and

WHEREAS, the aforesaid action is now pending and the parties desire to declare their respective rights and legal relations and those of their successors and assigns in and with relation to the real property hereinafter described by mutual covenant running with said real property and thereafter to discontinue the aforesaid action thereby avoiding the expense thereof;

WHEREAS, JOHN M. PERRY, one of the plaintiffs in the aforesaid action, died on the 16th day of January, 1964, seized and possessed of real property situated on North Country Road, St. James, Suffolk County, New York, acquired by deed dated July 17, 1917 and recorded in the office of the County Clerk of Suffolk County, in Liber 961 of Conveyances, page 205, January 3, 1918, and bounded and described as follows:

Parcel No. 1. Bounded on the north by land of Lydia M. Haight; and land of Ella B. Emmett; on east by westerly side of public highway from

Main North Country Highway to Stony Brook Harbor, known as Shepherd Jones Lane; on the southeast by the middle of Main North Country Highway; on south by land belonging to Estate of George Powell, deceased; on west by land of Ella B. Emmett, containing about 21 acres, be the same more or less, being the same premises conveyed to Frederick S. Minott by Edmund N. Smith and wife by deed dated March 1, 1909 and recorded in the Suffolk County Clerk's Office, Liber 677, page 323;

Parcel No. 2. Thereof bounded on the north by land of Mary Pierson, on the east by the westerly side of the highway leading from the Main North Country Highway to Stony Brook Harbor known as Shepherd Jones Lane, on the south by land of Edmund N. Smith; on west by land of Ella B. Emmett, containing 4 acres be the same more or less, being same premises conveyed to Frederick S. Minott by Lydia M. Haight and Clarence M. Haight by deed dated February 24, 1909 and recorded in the Suffolk County Clerk's Office, Liber 677, page 321;

Parcel No. 3. Bounded on the north and east by the southerly and westerly side of a public highway, leading from the Main North Country Road to Stony Brook Harbor known as Shepherd Jones Lane; south by land of Lydia M. Haight; west by land of Ella B. Emmett; containing about 11 acres be the same more or less, being same premises conveyed to Frederick S. Minott by Mary F. and John A. Pierson by deed dated March 1, 1909 and recorded in Suffolk County Clerk's Office, Liber 677, page 324;

WHEREAS, said JOHN M. PERRY left a last Will and Testament dated December 12, 1958 and admitted to probate by the Surrogate's Court of Suffolk County on February 3, 1964 by which he devised any and all real property wheresoever situated of which he should die seized or possessed or to which he might be entitled at the date of his death or in which he might have any interest whatever and the improvements thereon, together with the appurtenances to his wife, MATHILDE L. PERRY, FOURTH PARTY, during her lifetime with remainder to his issue in fee simple,

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per stirpes; and

WHEREAS, OLIVER HAZARD PERRY and AUDREY PERRY BURNIER, THIRD PARTIES, constitute the issue of JOHN M. PERRY, deceased, and are now seized of the aforesaid real property in fee simple subject to the life estate of FOURTH PARTY; and

WHEREAS, FOURTH PARTY, is seized and possessed of real property situated on North Country Road, St. James, Suffolk County, New York, acquired by deed dated March 17, 1949 and recorded in the office of the County Clerk of Suffolk County in Liber 2942 of Conveyances, page 463, April 26, 1949, and bounded and described as follows:

> BEGINNING at a locust stake in the northerly line of the land hereby conveyed, which stake is at the southwest corner of the farm of Edward N. Smith; running N. 83° 21' W. 22.3 feet to a locust stake; S. 21° 22' W. 542.3 feet to locust stake; thence S. 42° 16' E. 504.3 feet to highway leading from Smithtown to Stony Brook; thence northeast along highway to land of above named Edward N. Smith; thence west along land to point or place of beginning containing by estimation 9½ acres of land, more or less, together with all interest in highway adjoining premises.

NOW, THEREFORE, in consideration of the mutuality hereof and other good and valuable consideration moving between the parties the parties have agreed:

1. Upon the execution and delivery of this instrument the aforesaid action shall be discontinued by consent without costs to any party as against any other party.

2. [illegible] successors and assigns will at no time construct, erect or place any building other than a single-family dwelling or dwellings and buildings accessory thereto on that portion of its real property located at Flowerfield, Town of Smithtown, Suffolk County, New York, bounded and described as follows:

BEGINNING at a monument set in the southeasterly line of North Country Road where said line is intersected by the northeasterly line of land now or formerly of Louise Heisler; running from said point of intersection North 35° 33' 40" East 790.80 feet along the southeasterly line of said road to a point on the southeasterly line of said road; thence North 38° 50' 30" East 173.77 feet still along the southeasterly line of said road to a point on the southeasterly line of said road; thence North 45° 18' East 272.39 feet still along the southeasterly line of said road to a point on the southeasterly line of said road; thence North 54° 24' East 321.45 feet still along the southeasterly side of said road to a point on the southeasterly side of said road; thence North 60° 51' 50" East 236.78 feet still along the southeasterly side of said road to a point on the southeasterly line of said road; thence North 43° 20' 40" East 192.72 feet still along the southeasterly side of said road to a point on the southeasterly side of said road; thence South 36° 28' 50" West 943.62 feet to a point; thence South [illegible] 21.59 feet to a point; thence South 38° 50' 30" West [illegible] feet to a point; thence South

35° 33' 40" West 787.96 feet to land now or formerly of Louise Heisler; thence North [illegible] 20' 30" West along said land now or formerly of Louise Heisler 300.05 feet to the point or place of beginning.

3. No parking lot or parking area shall be constructed or maintained by FIRST PARTY, its successors or assigns, within one hundred feet of the southeasterly line of North Country Road except where the distance between the southeasterly line of North Country Road and the southeasterly boundary of the property hereinbefore described in paragraph 2 hereof is less than one hundred feet in which case no parking lot or parking area shall be constructed or maintained between the southeasterly side of Old Country Road and the southeasterly boundary of said property and, provided further, before devoting any portion of said property described in paragraph 2 hereof to use as a parking lot or parking area, said parking lot or parking area shall be screened from North Country Road by the installation and maintenance of a natural screen of Norway Spruce immediately northwest and along the line of the northwesterly boundary of such parking lot or parking area to full length thereof from west to east.

4. Any parking lot or parking area constructed by FIRST PARTY, its successors or assigns within 100 feet of the easterly boundary of land now or formerly of Jankowski, Elderkin, Lampe and Semerad shall be screened from said properties by the installation and maintenance of ten feet of lawn immediately east of the easterly line of said properties, followed by the installation and maintenance of a natural border of Norway Spruce immediately east of said ten feet of lawn area and followed by the installation and maintenance of a five foot area of lawn between said Norway Spruce and the westerly-most portion of the improved surface of the parking area, said combined lawn and planting area to be of a width equal to that of said parking area.

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Olive Hazard Perry

Audrey Perry Burnier

Mathilde L. Perry

TOWN OF SMITHTOWN,

By ____________________

INCORPORATED VILLAGE OF HEAD OF THE HARBOR,

By ____________________
MAYOR

State of New York,)
ss.:
County of Suffolk.)

On the 23rd day of November, 1964, before me personally came PETER J. PAPADAKOS, to me known, who, being by me duly sworn, did depose and say that he resides at No. Number, Mills Pond Road, St. James, NY; that he is the President of GYRODYNE COMPANY OF AMERICA, INC., the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that he signed his name thereto by like order.

(Notary Public)

JOSEPH C. DORN
NOTARY PUBLIC, State of New York
No. 52-1000050
Qualified in Suffolk County
Commission Expires March 30, 196_

State of New York)
ss.:
County of New York)

On the 9th day of November, 1964, before me personally came Bernard J. Cassidy, to me known, who, being by me duly sworn, did depose and say that he resides at No. 1916 East 23rd Street, Brooklyn 15, New York;

LIBER 5674 PAGE 23

that he is an Assistant Vice President of THE CHASE MANHATTAN BANK, the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that he signed his name thereto by like order.

Ralph G. Imbriale
(Notary Public)

RALPH G. IMBRIALE
NOTARY PUBLIC, STATE OF NEW YORK
No. 24-1919450 Kings County
Certificate filed in New York County
Term Expires March 30, 1965

State of New York)
) ss.:
County of [illegible])

On the [illegible] day of [illegible], 196[illegible], before me personally came OLIVER HAZARD PERRY, to me known to be the individual described in and who executed the foregoing instrument and acknowledged to me that he executed the same.

Fred A. [illegible]
(Notary Public)

5674 [illegible] 29[illegible]

State of California [illegible]

County of San Diego [illegible]

On the [illegible] day of [illegible], 1964, before me personally came AUDREY PERRY [illegible] to me known to be the individual described in and who executed the foregoing instrument, and [illegible] to me [illegible] she executed the same.

Virginia C. Flowers
Notary Public

VIRGINIA C. FLOWERS
[illegible]

VIRGINIA C. FLOWERS
My Commission [illegible] Nov. 23, 1967

STATE OF CALIFORNIA, } ss.
County of San Diego

I, R. B. JAMES, Clerk of the County of San Diego and also Clerk of the [illegible] Court of the State of California, in and for the said county of San Diego, the same being a Court of Record, having by law a seal, DO HEREBY CERTIFY that [illegible] Certificate of Proof or Virginia C. Flowers [illegible] and Acknowledgment, Acknowledgment of the annexed instrument [illegible] the laws of said State, to a Notary Public in and for said County [illegible] lands, tenements or hereditaments in said State [illegible] such Notary Public and take the same and administer oaths [illegible] FURTHER CERTIFY that [illegible] be recorded [illegible] proof [illegible] be under Seal, but the verily believe [illegible] in my office or in any other place, under the laws of the State of California [illegible] impression of said seal is not required by the laws of the State of California.

Date	Case Number	Chr.	Item	Amount Paid
[illegible]	[illegible]	[illegible]	[illegible]	0.50

Witness my hand and the seal of said Court.

R. B. JAMES, County Clerk. By Kathryn Watson Deputy
KATHRYN WATSON

CERTIFICATE OF PROOF OF NOTARY

Form 35 Co. Clk. [illegible]

State of [illegible]

County of Suffolk

On the [illegible] day of May, 1964, before me personally came MATHILDE [illegible], to me known to be the individual described in and who executed the foregoing instrument, and acknowledged that she executed the same.

[signature]

(Notary Public)

WESLEY PITT
Notary Public, State of New York
Residing in Suffolk County
Suffolk County Clerk's No. [illegible]
Commission Expires March 30, 1966

LIBER 5674 PAGE 25

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LIBER 5674 PAGE 26

State of New York)
ss.:
County of Suffolk)

On the [illegible] day of [illegible]cember [illegible] 1964,
before me personally came OTTO SCHUBERT [illegible],
to me known, who, being by me duly sworn, did depose and say
that he resides at [illegible] Ave., Kings Park, New York;
that he is the ~~Supervisor~~ Councilman of the TOWN OF SMITHTOWN, the
municipal corporation described in and which executed the
foregoing instrument; that he knows the seal of said corpora-
tion; that the seal affixed to said instrument is such
corporate seal; that it was so affixed by order of the Town
Board of said municipal corporation, and that he signed his
name thereto by like order.

John E. Heinrich
(Notary Public)
JOHN E. HEINRICH
Notary Public, State of New York
No. 52-8036050, Suffolk County
Term Expires March 30, 1966

State of New York)
ss.:
County of Suffolk)

On the 11th day of May 1964,
before me personally came [illegible] Jr.,
to me known, who, being by me duly sworn, did depose and say
that he resides at No. NO NUMBER HARBOR RD., St. James, N.Y.;
that he is the Mayor of the INCORPORATED VILLAGE OF HEAD OF
THE HARBOR, the municipal corporation described in and which
executed the foregoing instrument; that he knows the seal of

-14-

LIBER 5674 PAGE 27

said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Trustees of said corporation; and that he signed his name thereto by like order.

Marcial B. L'Hommedieu
(Notary Public)

MARCIAL B. L'HOMMEDIEU
Notary Public, State of New York
Qualified in Suffolk County
Number 52-7540065
Commission Expires March 30, 1964

LIBER 5674 PAGE 28

The unde[illegible] plaintiffs in the action in the Supreme Court, Suffolk County, entitled John M. Perry and other[illegible] plaintiffs, [illegible] Town of [illegible]town and Gyrodyne Company of America, [illegible] Defendants, Index Number [illegible]281/1961, for themselves, their [illegible] executors and assigns, consent to the execution by OLIVER HAZARD PERRY, AUDREY PERRY BURNIER, MATHILDE E. PERRY and the INCORPORATED VILLAGE OF HEAD OF THE HARBOR of the foregoing agreement and the recording thereof and the discontinuance, upon such execution and recording, of the said action.

Jean M. Dougherty
Jean M. Dougherty.

[signature]
Witness.

[signature]
Louise Heisler.

[signature]
Witness.

[signature]
Katherine Jankowski.

[signature]
Witness.

Neil Gargullo
Neil Gargullo.

[signature]
Witness.

[signature]
Mary Gargullo.

[signature]
Witness.

Robert B. Elderkin
Robert B. Elderkin.

[signature]
Witness.

Martha Elderkin
Martha Elderkin.

[signature]
Witness.

INDEX NO. 608051/2022
NYSCEF DOC. NO. 45
RECEIVED NYSCEF: 06/14/2022

LIBER 5674 PAGE 29

Janet S. Elderkin.

Witness:

Marie A. Bauer.

Witness:

John O. Sweek.

Witness:

Phyllis Sweek.

Witness:

[illegible]

Witness:

Marcia [illegible]

Witness:

Benjamin Yablonski.

Witness:

Edwin Yablonski.

Witness:

Carol A. Strauss.

Witness:

LIBER 5674 PAGE 30

Mildred Smith.

Witness:

Josephine Smith.

Witness:

[illegible] Smith.

Witness:

State of New York,
Kings. ss.:
County of Suffolk.

On this 28th day of April 1964,
before me personally came Terence A. Dougherty the
subscribing witness to the foregoing instrument, with whom
I am personally acquainted, who, being by me duly sworn, did
depose and say, that he resided at the time of said instru-
ment, and still resides at [illegible] Road, St. [illegible], N. Y.;
that he is and then was acquainted with [illegible] DOUGHERTY,
[redacted] KATHERINE JANKOWSKI, [illegible] GARGUILO, MARY
GARGUILO, ROBERT [illegible] ELDERKIN, MARTHA ELDERKIN, [illegible] S.
ELDERKIN, MARIE A. [illegible], JOHN [illegible], PHYLLIS [illegible], JAY
GAINES, MARCIA [illegible] [redacted],
CAROL L. STRAUSS, MILDRED SMITH, JOSEPHINE SMITH and MALCOLM
E. SMITH, and knew them to be the individuals described in

LIBER 5674 PAGE 31

and who executed the foregoing instrument; that he, said subscribing witness, was present and saw said JEAN M. DOUGHERTY, [redacted] CATHERINE JANKOWSKI, NEIL CARGUILO, MARY CARGUILO, ROBERT E. ELDERKIN, MARIE A. ELDERKIN, JANET S. ELDERKIN, MARIE A. BAUER, JOHN C. SWEEK, PHYLLIS SWEEK, JAY OLINES, MARCIA OLINES, [redacted] [illegible] SMITH and MALCOLM [illegible] SMITH execute the same; and that he, said witness, at the same time subscribed his name as witness thereto.

(Notary Public)

State of New York)
) ss.:
County of Suffolk)

On the 16th day of October, 1964, before me personally came [illegible], to me known to be the individual described in and who executed the foregoing instrument, and acknowledged that he executed the same.

(Notary Public)

LIBER 5074 PAGE 32

Supreme Co[illegible] [illegible]olk Coun[illegible] - - - - - - X

John M. Perry, [illegible] L. Perry, Jean M. Dougherty, Lou[illegible] [illegible]ine Jankowski, Ne[illegible] [illegible]ulio, Robert B. [illegible] John Janet S. [illegible] Edwin [illegible] Sweek, [illegible] Marcia Gaine[illegible] [illegible]ed Stern, Yablonski, [illegible] and the Josephane S[illegible] Incorporated [illegible] of [illegible] Harbor

Plaintiffs,

-against-

Town of Smithtown and Gyrodyne Company of America, Inc.,

Defendants.

- - - - - - - - - - - - - - - - - - X

Index No. 73281

The undersigned plaintiffs in the above action consent to the discontinuance thereof without costs.

Benjamin Yablonski

Edwin Yablonski

RECORDED
DEC 22 1961
[illegible] M.
[illegible] E. [illegible]
Clerk of Suffolk County

P398 P269

Gyrodyne Covenant

LIBER 8398 PAGE 269

Special Meeting
Town Board
Town of Smithtown
September 15, 1960

A special meeting of the Town Board of the Town of Smithtown, Suffolk County, New York was held at the Town Hall, Smithtown, New York on the 15th day of September, 1960 at 9:30 A. M.

Members present:

	Supervisor	Robert A. Brady
	Justices	Peter Nowick
		Floyd Sarisohn
	Councilmen	Otto H. Schubert
		Paul T. Given

A Waiver of Notice of Special Meeting was executed by the members of the Board and submitted to the Town Clerk for filing.

Councilman Given stated that one of the reasons for this meeting was to adopt a resolution approving the petition of Gyrodyne Company of America for an industrial classification. The Town Board has given a great deal of study to this application, and they are now ready to offer a decision.

The following resolution was offered by Councilman Given and seconded by Councilman Schubert.

(#509)
WHEREAS, Gyrodyne Company of America, Inc., of Flowerfield, Town of Smithtown, Suffolk County, New York, by petition verified June 28, 1960, made application to this Board for a change of zone of certain of its real property located at Flowerfield, as said real property is more particularly described in said application, from "A" Residence zone classification to "G" Industrial (Light Industrial) classification, and

WHEREAS, a public hearing was held by this Board at 2:00 P. M. on July 12, 1960 at Town Hall, Smithtown, New York, following notice thereof duly published and posted as required by law, and

WHEREAS, this Board has fully considered the evidence submitted in support of said application and the evidence submitted in opposition thereto and whereas this Board has determined that said application should be granted in part, subject to certain limitations,

NOW, THEREFORE, be it and it hereby is

RESOLVED, that the application of Gyrodyne Company of America, Inc., be granted to the extent that the following described real property shall be placed within the "G" Industrial (Light Industrial) zone and classification:

ALL that certain plot, piece or parcel of land situate, lying and being at Flowerfield in the Town of Smithtown, Suffolk County, New York, more particularly bounded and described as follows:

BEGINNING at a point formed by the intersection of the northerly line of land now or formerly of Annie E. Newton with the westerly line of the Long Island Railroad right-of-way;

Thence along said northerly line of Annie E. Newton South 82° 43' 50" West a distance of 266.14 feet;

0800 0400 0270

32412

Thence North 2° 57' 50" East a distance of 188.10 feet along the easterly boundary of land now or formerly of Semerad;

Thence North 3° 20' 40" East a distance of 181.70 feet along the easterly boundary of land now or formerly of Lampe;

Thence North 2° 01' 45" East a distance of 252.76 feet along the easterly boundary of land now or formerly of Robert Elderkin;

Thence North 2° 11' 50" West adistance of 265 feet along the easterly boundary of land now of Jankowski;

Thence North 18° 58' 50" West a distance of 349.88 feet;

Thence North 0° 28' 20" West a distance of 678.25 feet to the southeasterly corner of land now or formerly of Louise Heisler;

Thence along the northeasterly boundary of land now or formerly of Louise Heisler North 53° 20' 30" West a distance of 321.62 feet to the southerly side of North Country Road;

Thence along the southerly side of North Country Road the following six courses and distances:-

(1) North 35° 33' 40" East a distance of 790.80 feet

(2) North 38° 50' 30" East a distance of 178.77 feet

(3) North 45° 48' East a distance of 272.39 feet

(4) North 54° 24' East a distance of 321.35 feet

(5) North 60° 51' 50" East a distance of 412.47 feet

(6) North 43° 20' 40" East a distance of 192.72 feet

Thence South 34° 06' 20" East a distance of 390.15 feet to a point on a common boundary line between the Town of Smithtown and the Town of Brookhaven;

Thence along said common boundary line South 11° 46' 40" East a distance of 40.94 feet to a point on the westerly line of the Long Island Railroad right-of-way;

Thence along said westerly line of the Long Island Railroad right-of-way the following two courses and distances:

(1) South 19° 19' 30" West a distance of 3,247.72 feet

(2) Along the arc of a curve bearing to the right having a radius of 1,399.14 feet a distance of 136.20 feet to the point or place of beginning.

BE IT FURTHER RESOLVED, that the Building Zone Ordinance and Map of the Town of Smithtown be amended accordingly.

BE IT FURTHER RESOLVED that said change of zone is made upon and subject to the following two conditions:

(1) That Gyrodyne Company of America, Inc., execute and cause to be recorded in the office of the Clerk of the County of Suffolk a restrictive covenant to the effect that at no time will said Gyrodyne Company of America, Inc., its successors or assigns, construct, erect or place any building on that portion of its real property located within an area bounded on the north by the southerly side of North Country Road,

on the south by an imaginary line drawn parallel to and 200 feet southerly from the southerly line of North Country Road, on the west by land now or formerly of Heisler and on the east by the current easterly boundary of property of said Gyrodyne Company of America, Inc.

(2) That any parking lot or parking area constructed by Gyrodyne Companyof America, Inc., within one hundred (100) feet of the easterly boundary of lands now or formerly of Jankowski, Elderkin, Lampe and Semerad shall be screened from said properties by the installation and maintenance of ten feet of lawn area immediately east of said easterly line of said properties, followed by the installation and maintenance of a natural screen of Norway Spruce immediately east of said ten feet of lawn area and followed by the installation and maintenance of a five foot area of lawn between the said Norway Spruce and the westerly most portion of the improved surface of the parking area, said combined lawn and planting area to be of a width equal to that of said parking area.

Dated: September 15, 1960

Roll call for adoption			
	Supervisor	Brady	yes
	Justices	Nowick	abstained
		Sarisohn	yes
	Councilmen	Schubert	yes
		Given	yes

LIBER 8398 PAGE 272

Re: Resolution #509

Dated: September 15, 1960

STATE OF NEW YORK)
TOWN OF SMITHTOWN) ss:
COUNTY OF SUFFOLK)

I, VICTOR T. LISS, Town Clerk of the Town of Smithtown, County of Suffolk, New York, do hereby certify that the foregoing is a true copy of an original on file in my office, and further certify that said has been compared by me with the original thereof, and that the foregoing is a correct transcript therefrom, and of the whole of said original.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of said Town to be hereunto affixed at Smithtown, in said County and State this 17th day of February, 1978

Victor T. Liss

VICTOR T. LISS, TOWN CLERK
TOWN OF SMITHTOWN

LIBER 8398 PAGE 273

REV 3/8/78

Town Board
Town Hall
Smithtown N.Y.

[redacted]

SUFFOLK COUNTY CLERK
RECORDS OFFICE
RECORDING PAGE

Type of Instrument: DECLARATION COVENANT/RESTRICTIO
Number of Pages: 7

Recorded: 08/22/2002
At: 11:15:09 AM
LIBER: D00012204
PAGE: 947

District:	Section:	Block:	Lot:
0800	040.00	02.00	013.003

EXAMINED AND CHARGED AS FOLLOWS

Received the Following Fees For Above Instrument

		Exempt			Exempt
Page/Filing	$21.00	NO	Handling	$5.00	NO
COE	$5.00	NO	NYS SURCHG	$15.00	NO
TP-584	$0.00	NO	Notation	$0.00	NO
Cert.Copies	$4.00	NO	RPT	$90.00	NO
SCTM	$0.00	NO			
		Fees Paid		$140.00	

THIS PAGE IS A PART OF THE INSTRUMENT

Edward P.Romaine
County Clerk, Suffolk County

①

12-0104 (2/99)

1 2 3

Number of pages 7

TORRENS

Serial # ____

Certificate # ____

Prior Ctf. # ____

RECORDED
2002 Aug 22 11:15:09 AM
Edward P.Romaine
CLERK OF
SUFFOLK COUNTY
L D00012204
P 947

Page C-38

Deed / Mortgage Instrument | Deed / Mortgage Tax Stamp | Recording / Filing Stamps

4 FEES

Page / Filing Fee	81 —	Mortgage Amt.	
Handling	5 —	1. Basic Tax	
TP-584		2. Additional Tax	
Notation		Sub Total	
EA-52 17 (County)	Sub Total 96.00	Spec./Assit. Or Spec./Add.	
EA-5217 (State)		TOT. MTG. TAX	
R.P.T.S.A.	90 —	Dual Town ____ Dual County ____	
Comm. of Ed.	5 00	Held for Apportionment ____	
Affidavit		Transfer Tax	
Certified Copy	5, 4 —	Mansion Tax	
Reg. Copy	Sub Total 114.00	The property covered by this mortgage is or will be improved by a one or two family dwelling only. YES ____ or ____ NO	
Other	15 — GRAND TOTAL 140.00	If NO, see appropriate tax clause on page # ____ of this instrument.	

5 Real Property Tax Service Agency Verification

	Dist.	Section	Block	Lot
Stamp	0800.00	040.00	02.00	p/o 03.003
Date				p/o 03.004
Initials				p/o 04.000
				p/o 05.000

6 Community Preservation Fund

Consideration Amount $ ____

CPF Tax Due $ ____

Improved ____

Vacant Land ____

TD ____

TD ____

TD ____

7 Satisfactions/Discharges/Releases List Property Owners Mailing Address

RECORD & RETURN TO:

Marcia L. Finkelstein, Esq.
Lamb & Barnosky, LLP
534 Broadhollow Road
Melville, NY 11747

8 Title Company Information

Co. Name FIRST AMERICAN TITLE INS. CO. OF NY

Title # LI-23170-NYSX

9 **SUFFOLK COUNTY RECORDING & ENDORSEMENT PAGE**

This page forms part of the attached DECLARATION OF COVENANTS AND RESTRICTIONS made by:
(SPECIFY TYPE OF INSTRUMENT)

GYRODYNE COMPANY OF AMERICA, INC. The premises herein is situated in
SUFFOLK COUNTY, NEW YORK.

To

In the Township of SMITHTOWN

In the VILLAGE or HAMLET of ST. JAMES

BOXES 5 THRU 9 MUST BE TYPED OR PRINTED IN BLACK INK ONLY PRIOR TO RECORDING OR FILING.

(OVER)

DECLARATION OF COVENANTS AND RESTRICTIONS

This Declaration of Covenants and Restrictions (the "Declaration") dated as of the 1st day of August, 2002 by GYRODYNE COMPANY OF AMERICA, INC. having offices at 102 Flowerfield, St. James, New York 11780 hereinafter referred to as the "DECLARANT".

WITNESSETH:

WHEREAS, the DECLARANT is the owner in fee simple of certain real property situate, lying and being at Flowerfield in the Town of Smithtown, County of Suffolk and State of New York being more particularly bounded and described on Schedule "A" and as shown on the map constituting Schedule "B" hereto attached and made a part hereof (the "Premises"); and

WHEREAS, upon petition by DECLARANT, by resolution (the "Rezoning Resolution") adopted on the 12th day of November 1996, the Town Board of the Town of Smithtown, amended the Zoning Code and Map of the Town of Smithtown so as to change the zoning classification of that portion of the Premises designated as "Parcel 1" from LI to R-43 and that portion of the Premises designated as "Parcel 2" from R-43 to LI, and

WHEREAS, as a condition of such resolution, the applicant was required to record in the Suffolk County Clerk's Office covenants with respect to the use of the Premises in order for the resolution to take effect.

NOW, THEREFORE, DECLARANT, in compliance with the condition of the resolution, hereby declares that the Premises are and shall be held, transferred, sold, conveyed and occupied subject to the covenants, conditions and restrictions hereinafter set forth.

1. No building or parking area shall be constructed or maintained within any portion of Parcel 1.

2. No building or parking area, except as authorized in the R-43 zoning classification, shall be constructed or maintained within any portion of Parcel 3.

3. The use of that portion of the Premises designated as Parcel 2 shall be limited to the operation of a restaurant used as a catering facility only and any other use of Parcel 2 will be prohibited unless authorized by the Town Board of the Town of Smithtown.

4. The maximum noise levels generated by the Swim Club and/or any facilities occupying any portion of Parcel 2 of the Premises shall not exceed the following limits: (a) between the hours of 7:00 a.m and 10:00 p.m. daily: 55dBA; (b) between the hours of 10:00 p.m. and 7:00 a.m. daily: (50dBA). The foregoing limits shall not be exceeded by any noise levels measured at or within the real property line of the receiving of the property.

This DECLARATION and the rights and obligations created hereunder shall be perpetual and shall run with the land and be binding upon and inure to the benefit of the heirs, successors and assigns of the DECLARANT.

IN WITNESS WHEREOF, the DECLARANT has executed and acknowledged this Declaration the ~~1st~~ 8th day of August 2002.

GYRODYNE COMPANY OF AMERICA, INC.

By:____________________
Steven Maroney

364799

STATE OF NEW YORK)
: ss.:
COUNTY OF SUFFOLK)

On the 8th day of August in the year 2002 before me, the undersigned, a notary public in and for said State, personally appeared Stephen Maroney, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public

Joseph D. Monaco
Notary Public, State of New York
No. 02MO4962971
Qualified in Nassau County
Commission Expires 02/26/2006

PROPERTY DESCRIPTION

ALL that certain plot, piece or parcel of land situate, lying and being at St. James in the Town of Smithtown, County of Suffolk and State of New York being more particularly bounded and described as follows:

Parcel 1

Beginning at a point at the intersection of the Northeasterly side of Mills Pond Road and the Southeasterly side of North Country Road (N.Y.S Route25-A); running thence Northeasterly from said point of beginning along the Southeasterly side of North Country Road (N.Y.S Route25-A) the following three(3) courses and distances:

1) N 33° 27' 20" E 292.34'
2) N 34° 29' 31" E 275.98'
3) N 35° 33' 42" E 713.63' to a point;

running thence from said point through land of Gyrodyne of America S 53° 20' 28' E 200.00' to the Southerly side of this parcel; running thence Southwesterly along the Southerly side of the herein described parcel and still through land of Gyrodyne of America S 35° 35' 42" W 1,320.70' to the Northeasterly side of Mills Pond Road; running thence Northwesterly along the Northeasterly side of Mills Pond Road N 41° 15' 40" W 188.25' to the intersection of the Northeasterly side of Mills Pond Road and the Southeasterly side of North Country Road (N.Y.S Route25-A) and the point or place of beginning, containing within said bounds 5.87 acres.

Parcel 2

Commencing at the point of intersection of the southeasterly side of North Country Road (State Route 25A) with the northeasterly side of Mills Pond Road;

Thence along the easterly line of New York State Route 25A north 33° 27' 20" east a distance of 568.76';

Thence south 53° 20' 30" east a distance of 200' to the point or place of BEGINNING.

Thence, from said point of beginning, south 53° 20' 30" east a distance of 121.62'.

Thence south 00° 12' 00" west a distance of 730.34'.

Thence north 36° 44' 03" west a distance of 554.76';

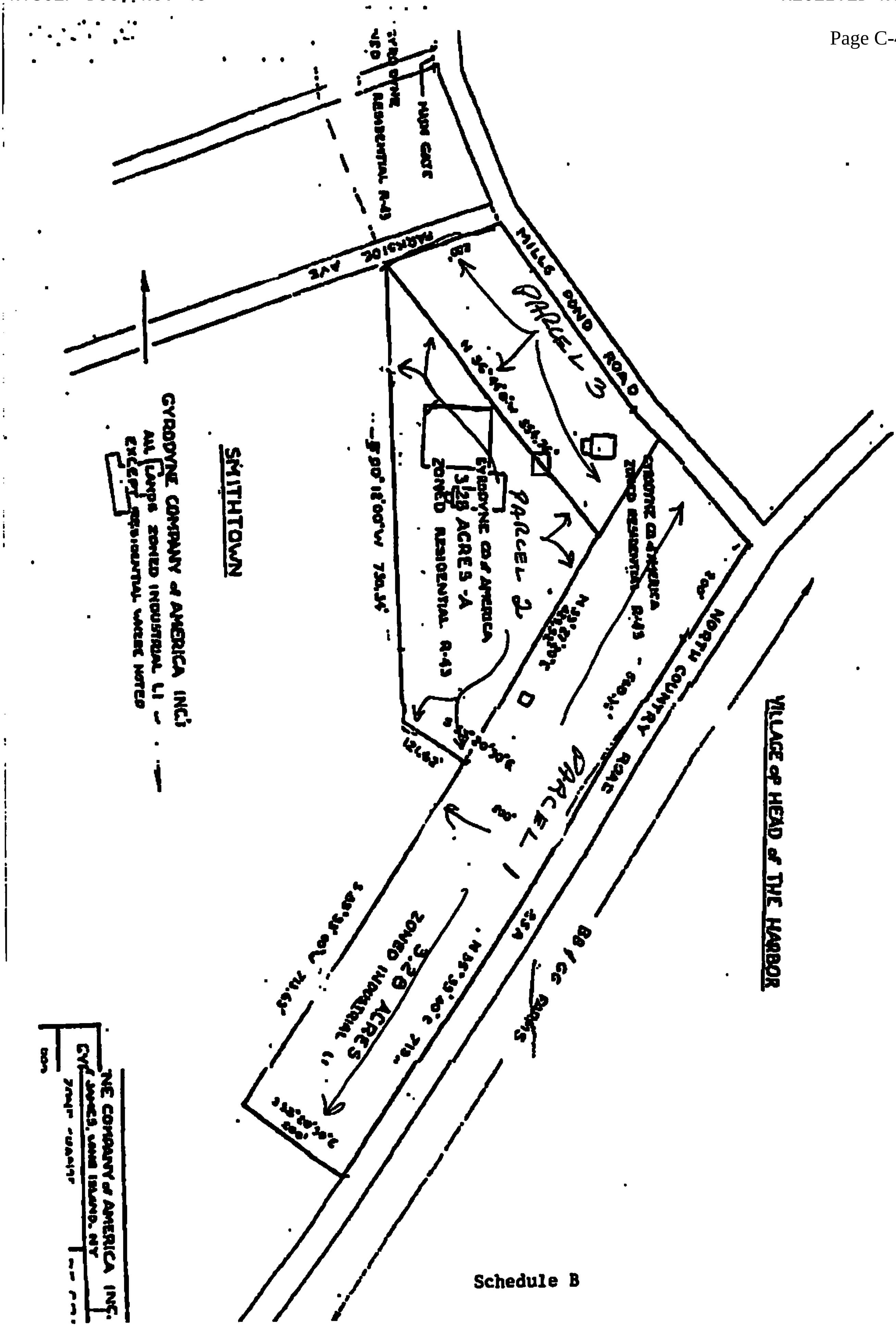
Thence north 33° 27' 20" east a distance of 429.52' to the point or place of BEGINNING.

Schedule A

Parcel 3

Beginning at a point on the Northeasterly side of Mills Pond Road 188.25' Southeast of the Southeasterly side of North Country Road (NYS Route 25-A) as measured along the Northeasterly side of Mills Pond Road; running thence Northeasterly and Southeasterly through other lands now or formerly of Gyrodyne of America N 35°35' 42" E 182.96' and S 36°43' 58" E 573.45' to the Northerly side of Parkside Avenue; running thence Westerly along the Northerly side of Parkside Avenue S 75° 17' 30" W 201.40' to the Northeasterly side of Mills Pond Road; running thence Northwesterly along the Northeasterly side of Mills Pond Road N 33° 48' 40" W 364.57' and N 41° 15' 40" W 78.53' to the point or place of beginning, containing within said bounds 2.06 acres.

Schedule A


SMITHTOWN
VILLAGE of HEAD of THE HARBOR
MILLS POND ROAD
NORTH COUNTRY ROAD
PARCEL 1
PARCEL 2
PARCEL 3

Schedule B

11806 PG 976

Page C-45

L 17881

11806 PG976

Number of pages 5.

TORRENS	RECEIVED $ 0 REAL ESTATE DEC 1 9 1996 TRANSFER TAX SUFFOLK COUNTY	RECORDED 96 DEC 19 PM 12:58 EDWARD P. ROMAINE CLERK OF SUFFOLK COUNTY
Serial # ______ Certificate # ______ Prior Ctf. # ______	L 17881	
Deed / Mortgage Instrument	Deed / Mortgage Tax Stamp	Recording / Filing Stamps

4 FEES

Page / Filing Fee	15.	Mortgage Amt.	.
Handling	5.	1. Basic Tax	.
TP-584	5.	2. Additional Tax	.
Notation	.	Sub Total	.
EA-5217 (County)	5. Sub Total 30.–	Spec./Assit. or Spec./Add.	.
EA-5217 (State)	25.–		
R.P.T.S.A.	15.	TOT. MTG. TAX	.
Comm. of Ed.	5.00	Dual Town ___ Dual County ___ Held for Apportionment ___	
Affidavit	.	Transfer Tax	0.
Certified Copy	.	Mansion Tax	.
Reg. Copy	. Sub Total 45.	The property covered by this mortgage is or will be improved by a one or two family dwelling only. YES ___ or NO ___	
Other	. GRAND TOTAL 75.00 D.	If NO, see appropriate tax clause on page # ___ of this instrument.	

p/o 013.003

5 Real Property Tax Service Agency Verification

	Dist.	Section	Block	Lot
Stamp	0800	040.00	02.00	p/o 013.000
Date 12-19-96				
Initials				

6 Title Company Information

N/A
Company Name

Title Number

TOWN ATTORNEY
TOWN of SMITHTOWN
99 West Main Street
P.O. Box 575
Smithtown, NY 11787

7 RECORD & RETURN TO (ADDRESS)

8 FEE PAID BY:
Cash ___ Check ✓ Charge ___
Payer same as R & R ✓
(or if different)
NAME: ______
ADDRESS: ______

9 **Suffolk County Recording & Endorsement Page**

This page forms part of the attached Easement made by:
(SPECIFY TYPE OF INSTRUMENT)

GYRODYNE CO. OF AMERICA, INC.

The premises herein is situated in SUFFOLK COUNTY, NEW YORK.

TO

TOWN OF SMITHTOWN

In the Township of Smithtown

In the VILLAGE or HAMLET of St. James

BOXES 5 THRU 9 MUST BE TYPED OR PRINTED IN BLACK INK ONLY PRIOR TO RECORDING OR FILING.

GRANT OF DRAINAGE EASEMENT

TEMPORARY EASEMENT made this 25 day of October, 1996, between **GYRODYNE CO. OF AMERICA, INC.**, with offices at 7 Flowerfield, Suite 28, St. James, NY 11780, and TOWN OF SMITHTOWN, a municipal corporation, having its offices at the Town Hall, 99 West Main Street, Smithtown, New York, party of the second party:

WITNESSETH:

That the party of the first part for good and valuable considerations and the payment of the sum of ONE DOLLAR ($1.00) lawful money of the United States, paid by the party of the second part to the party of the first part, the receipt whereof is hereby acknowledged, DO HEREBY CONSENT, grant, convey and release to the party of the second part, its successors and assigns, a twenty year easement commencing 25 October, 1996, and right-of-way under, over, through and across the lands hereinafter described, situated at St. James in the unincorporated area of the TOWN OF SMITHTOWN, Suffolk County, New York, in, under and upon which to construct, lay, relay, repair, operate, maintain and remove storm drainage pipe or pipes and other drainage appurtenances which will be maintained by and at the expense of the TOWN OF SMITHTOWN, with the right to set up, operate, repair and maintain the same and with a right of ingress and egress to and from said easement and right-of-way for such purposes. The said twenty year easement shall run with the land for the term of the easement. The real property over which said temporary easement is granted, conveyed and released hereby to the party of the second part is as follows:

SEE SCHEDULE "A" ATTACHED

At the conclusion of the temporary easement period, 25 October 2016, GYRODYNE or its successor shall accept the in-place drainage system in an "as is, where is" condition, with no further expense to the TOWN OF SMITHTOWN, provided that all links (weir) between the pond at Mills Pond and the Gyrodyne property have been severed and sealed.

IN WITNESS WHEREOF, the party of the first part has duly executed this agreement, and the party of the first part has caused this agreement to be executed on its behalf by its duly authorized officer and its corporate seal to be hereunto affixed, the day and year first above written.

TOWN OF SMITHTOWN

By: ______________
Patrick Vecchio
Supervisor

GYRODYNE CO. OF AMERICA, INC.

By: ______________
Dimitri P. Papadakos
President

STATE OF NEW YORK)
) ss.:
COUNTY OF SUFFOLK)

On the 9th day of ~~October~~ December, 1996, before me personally came Dimitri P. Papadakos, to me known, who, being by me duly sworn, did depose and say that he maintains an office at 7 Flowerfield, St. James, NY 11780, that he is the President of GYRODYNE CO. OF AMERICA, INC., the corporation described in and which executed the foregoing instrument by order of the Board of Directors of said corporation, and that he signed his name thereto by like order that he executed the same.

Lynn Edwards
Notary Public

LYNN EDWARDS
NOTARY PUBLIC, State of NY
No. 5008509, Suffolk County
Term Expires 2/22/97

STATE OF NEW YORK)
COUNTY OF SUFFOLK)
TOWN OF SMITHTOWN)

On the 11th day of December, 1996, before me personally came Patrick R. Vecchio, to me known, who, being by me duly sworn, did depose and say that he is the duly elected Supervisor of the Town of Smithtown, County of Suffolk, New York, and that at a meeting of the Town Board of the Town of Smithtown, duly held on the 10th day of December, 1996, the said Board authorized the said Supervisor to execute all and any agreements on behalf of the Board; that he knows the seal of the said Town; that the seal affixed to the foregoing instrument is its corporate seal; that it was affixed thereto by order of said Board; and that he signed his name thereto and executed the said instrument on behalf of the said Board by like order and authority.

Jane Loeb
Notary Public

JANE LOEB
NOTARY PUBLIC, State of New York
No. 52-4815379 - Suffolk County
Commission Expires September 30, 1997

DRAINAGE EASEMENT DESCRIPTION:

All that certain plot, piece, parcel of land located at Saint James, Town of Smithtown, Suffolk County, N.Y., being more particularly bounded and described as follows:

BEGINNING at a point formed by the intersection of the easterly side of Mills Pond Road with the southerly side of N.Y. State Rte. # 25-A:

Running thence along the southerly side of N.Y.S. Rte. #25-A N 33°27' 20" E 97.60' to a point;

Thence S 1°27' 07" E 17.28' to a point;

Thence S 33°27' 20" W 70.68' to a point;

Thence S 41°15' 40" E 64.31' to a point;

Thence S 1°27' 07" E 23.41' to the easterly side of Mills Pond Road;

Thence along the easterly side of Mills Pond Road N 41°15' 40" W 88.56' to the southerly side of N.Y.S. Rte. #25-A at the point or place of beginning.

Containing within said bounds 1,980 Sq. Ft. or 0.046 Acres

S.C.T.M. DIST. 0800 40 02 P/O 13

41560

RECORDED

11839 PG509

Number of pages 4

TORRENS

Serial # ______

Certificate # ______

Prior Ctf. # ______

RECEIVED
$ 0
REAL ESTATE
JUL 8 1997
TRANSFER TAX
SUFFOLK
COUNTY

41560

97 JUL -8 AM 11:29

EDWARD P. ROMAINE
CLERK OF
SUFFOLK COUNTY

1 Deed / Mortgage Instrument	2 Deed / Mortgage Tax Stamp	3 Recording / Filing Stamps

4 FEES

Page / Filing Fee	12	Mortgage Amt.	
Handling	5	1. Basic Tax	
TP-584	5	2. Additional Tax	
Notation		Sub Total	
EA-5217 (County)	Sub Total 22	Spec./Assit. or Spec. /Add.	
EA-5217 (State)		TOT. MTG. TAX	
R.P.T.S.A.	15	Dual Town ___ Dual County ___ Held for Apportionment ___	
Comm. of Ed.	5.00	Transfer Tax	
Affidavit		Mansion Tax	
Certified Copy		The property covered by this mortgage is or will be improved by a one or two family dwelling only. YES ___ or NO ___	
Reg. Copy	Sub Total 20	If NO, see appropriate tax clause on page # ___ of this instrument.	
Other	GRAND TOTAL 42		

SUFFOLK COUNTY SEAL NEW YORK

5 Real Property Tax Service Agency Verification

	Dist.	Section	Block	Lot
Stamp (SUFFOLK COUNTY)	0800	040.00	02.00	p/o 013.001
Date 7-8-97				
Initials				

6 Title Company Information

N/A
Company Name

Title Number

p/o 013.003

TOWN ATTORNEY
TOWN OF SMITHTOWN
99 West Main Street-P.O. Box 575
Smithtown, NY 11787

7 RECORD & RETURN TO (ADDRESS)

8 FEE PAID BY:

Cash ___ Check x Charge ___

Payer same as R & R x
(or if different)

NAME: ______

ADDRESS: ______

9 Suffolk County Recording & Endorsement Page

This page forms part of the attached DRAINAGE EASEMENT made by:
(SPECIFY TYPE OF INSTRUMENT)

GYRODYNE CO. OF AMERICA, INC.

TO

TOWN OF SMITHTOWN

The premises herein is situated in
SUFFOLK COUNTY, NEW YORK.

In the Township of Smithtown

In the VILLAGE or HAMLET of St. James

BOXES 5 THRU 9 MUST BE TYPED OR PRINTED IN BLACK INK ONLY PRIOR TO RECORDING OR FILING.

GRANT OF DRAINAGE EASEMENT

EASEMENT made this 10thday of June 1997, between GYRODYNE CO. OF AMERICA, INC., with offices at 7 Flowerfield, Suite 28, St. James, NY 11780, and TOWN OF SMITHTOWN, a municipal corporation, having its offices at the Town Hall, 99 West Main Street, Smithtown, New York, party of the second party:

WITNESSETH:

That the party of the first part for good and valuable considerations and the payment of the sum of ONE DOLLAR ($1.00) lawful money of the United States, paid by the party of the second part to the party of the first part, the receipt whereof is hereby acknowledged, DOES HEREBY CONSENT, grant, convey and release to the party of the second part, its successors and assigns, perpetual easement and right-of-way under, over, through and across the lands hereinafter described, situated at St. James in the unincorporated area of the TOWN OF SMITHTOWN, Suffolk County, New York, in, under and upon which to construct, lay, relay, repair, operate, maintain and remove storm drainage pipe or pipes and other drainage appurtenances which will be maintained by and at the expense of the TOWN OF SMITHTOWN, with the right to set up, operate, repair and maintain the same and with a right of ingress and egress to and from said easement and right-of-way for such purposes. The said perpetual easement shall run with the land. The real property over which said easement is granted, conveyed and released hereby to the party of the second part is as follows:

SEE SCHEDULE "A" ATTACHED

This easement supersedes prior easement, dated October 25, 1996, and recorded in the Suffolk County Clerk's Office on December 19, 1996, in Liber 11806 at page 976.

IN WITNESS WHEREOF, the party of the first part has duly executed this agreement, and the party of the first part has caused this agreement to be executed on its behalf by its duly authorized officer and its corporate seal to be hereunto affixed, the day and year first above written.

GYRODYNE CO. OF AMERICA, INC.

By: ____________________
Dimitri P. Papadakos,
President

STATE OF NEW YORK)
) ss.:
COUNTY OF SUFFOLK)

On the 10th day of ~~May~~ June, 1997, before me personally came Dimitri P. Papadakos, to me known, who, being by me duly sworn, did depose and say that he maintains an office at 7 Flowerfield, St. James, NY 11780, that he is the President of GYRODYNE CO. OF AMERICA, INC., the corporation described in and which executed the foregoing instrument by order of the Board of Directors of said corporation, and that he signed his name thereto by like order. that he executed the same.

____
Notary Public
NOTARY PUBLIC, State of NY
No. 5022509, Suffolk County
Term Expires 2/22/99

SCHEDULE "A"

DRAINAGE EASEMENT
DESCRIPTION:

All that certain plot, piece, parcel of land located at Saint James, Town of Smithtown, Suffolk County, New York, being more particularly bounded and described as follows:

BEGINNING at a point formed by the intersection of the easterly side of Mills Pond Road with the southerly side of New York State Route #25-A:

Running thence along the southerly side of New York State Route #25-A N 33° 27′ 20" E 97.60′ to a point;

Thence S 1° 27′ 07" E 17.28′ to a point;

Thence S 33° 27′ 20" W 70.68′ to a point;

Thence S 41° 15′ 40" E 64.31′ to a point;

Thence S 1° 27′ 07" E 23.41′ to the easterly side of Mills Pond Road;

Thence along the easterly side of Mills Pond Road N 41° 15′ 40" W 88.56′ to the southerly side of New York State Route #25-A at the point or place of beginning.

Containing within said bounds 1,980 sq. ft. or 0.046 acres.

S.C.T.M. #0800-40-02-p/o 13

Appendix D:

Soil Reports

United States Department of Agriculture

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Suffolk County, New York

June 16, 2017

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
Area of Interest (AOI)

Soils
Soil Map Unit Polygons
Soil Map Unit Lines
Soil Map Unit Points

Special Point Features
Blowout
Borrow Pit
Clay Spot
Closed Depression
Gravel Pit
Gravelly Spot
Landfill
Lava Flow
Marsh or swamp
Mine or Quarry
Miscellaneous Water
Perennial Water
Rock Outcrop
Saline Spot
Sandy Spot
Severely Eroded Spot
Sinkhole
Slide or Slip
Sodic Spot
Spoil Area
Stony Spot
Very Stony Spot
Wet Spot
Other
Special Line Features

Water Features
Streams and Canals

Transportation
Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background
Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Suffolk County, New York
Survey Area Data: Version 14, Sep 24, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Suffolk County, New York (NY103)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
CpE	Carver and Plymouth sands, 15 to 35 percent slopes	1.3	1.7%
HaB	Haven loam, 2 to 6 percent slopes	4.3	5.6%
Ra	Raynham loam	1.2	1.6%
RdA	Riverhead sandy loam, 0 to 3 percent slopes	10.7	14.0%
RdB	Riverhead sandy loam, 3 to 8 percent slopes	19.4	25.3%
RhB	Riverhead and Haven soils, graded, 0 to 8 percent slopes	33.3	43.6%
SdB	Scio silt loam, sandy substratum, 2 to 6 percent slopes	6.3	8.3%
Totals for Area of Interest		**76.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Suffolk County, New York

CpE—Carver and Plymouth sands, 15 to 35 percent slopes

Map Unit Setting

National map unit symbol: 9x6j
Mean annual precipitation: 45 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 150 to 225 days
Farmland classification: Not prime farmland

Map Unit Composition

Carver and similar soils: 40 percent
Plymouth, sand, and similar soils: 40 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Carver

Setting

Landform: Outwash plains, moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse sandy glaciofluvial deposits

Typical profile

Oa - 0 to 1 inches: highly decomposed plant material
H1 - 1 to 9 inches: coarse sand
H2 - 9 to 23 inches: coarse sand
H3 - 23 to 60 inches: coarse sand

Properties and qualities

Slope: 15 to 35 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Hydric soil rating: No

Description of Plymouth, Sand

Setting

Landform: Outwash plains, moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser

Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Acid sandy glaciofluvial or deltaic deposits

Typical profile
H1 - 0 to 4 inches: sand
H2 - 4 to 27 inches: sand
H3 - 27 to 60 inches: gravelly coarse sand

Properties and qualities
Slope: 15 to 35 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 2.4 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Haven
Percent of map unit: 5 percent
Hydric soil rating: No

Montauk, sandy variant
Percent of map unit: 5 percent
Hydric soil rating: No

Riverhead
Percent of map unit: 5 percent
Hydric soil rating: No

Carver, dark subsoil
Percent of map unit: 5 percent
Hydric soil rating: No

HaB—Haven loam, 2 to 6 percent slopes

Map Unit Setting
National map unit symbol: 9x6w
Mean annual precipitation: 45 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 150 to 225 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Haven and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Haven

Setting

Landform: Outwash plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits

Typical profile

Oa - 0 to 2 inches: highly decomposed plant material
H1 - 2 to 5 inches: loam
H2 - 5 to 19 inches: loam
BC - 19 to 28 inches: gravelly loam
C - 28 to 60 inches: stratified gravelly sand

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Riverhead

Percent of map unit: 8 percent
Hydric soil rating: No

Bridgehampton

Percent of map unit: 5 percent
Hydric soil rating: No

Montauk

Percent of map unit: 5 percent
Hydric soil rating: No

Haven, thick surface

Percent of map unit: 2 percent

Hydric soil rating: No

Ra—Raynham loam

Map Unit Setting

National map unit symbol: 9x7n
Elevation: 50 to 500 feet
Mean annual precipitation: 45 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 150 to 225 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Raynham, poorly drained, and similar soils: 50 percent
Raynham, somewhat poorly drained, and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Raynham, Poorly Drained

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Glaciolacustrine, eolian, or old alluvial deposits, comprised mainly of silt and very fine sand

Typical profile

Oa - 0 to 1 inches: highly decomposed plant material
H1 - 1 to 2 inches: loam
H2 - 2 to 40 inches: silt loam
H3 - 40 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Available water storage in profile: Very high (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D

Hydric soil rating: Yes

Description of Raynham, Somewhat Poorly Drained

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Glaciolacustrine, eolian, or old alluvial deposits, comprised mainly of silt and very fine sand

Typical profile

Oa - 0 to 1 inches: highly decomposed plant material
H1 - 1 to 2 inches: loam
H2 - 2 to 40 inches: silt loam
H3 - 40 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Available water storage in profile: Very high (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Hydric soil rating: No

Minor Components

Unnamed soils, sand and gravel substratum

Percent of map unit: 5 percent
Hydric soil rating: No

Unnamed soils, silt loam, very poorly drained

Percent of map unit: 5 percent
Hydric soil rating: Yes

Berryland

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

RdA—Riverhead sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9x7q
Mean annual precipitation: 45 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 150 to 225 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Riverhead and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Riverhead

Setting

Landform: Outwash plains, moraines
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy glaciofluvial deposits overlying stratified sand and gravel

Typical profile

H1 - 0 to 12 inches: sandy loam
H2 - 12 to 27 inches: sandy loam
H3 - 27 to 35 inches: gravelly loamy sand
H4 - 35 to 65 inches: stratified coarse sand to gravelly sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Haven
Percent of map unit: 5 percent
Hydric soil rating: No

Plymouth
Percent of map unit: 5 percent
Hydric soil rating: No

Sudbury
Percent of map unit: 5 percent
Hydric soil rating: No

Montauk, sandy variant
Percent of map unit: 3 percent
Hydric soil rating: No

Riverhead, silt loam layers
Percent of map unit: 2 percent
Hydric soil rating: No

RdB—Riverhead sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9x7r
Mean annual precipitation: 45 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 150 to 225 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Riverhead and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Riverhead

Setting
Landform: Outwash plains, moraines
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy glaciofluvial deposits overlying stratified sand and gravel

Typical profile
H1 - 0 to 12 inches: sandy loam
H2 - 12 to 27 inches: sandy loam
H3 - 27 to 35 inches: gravelly loamy sand
H4 - 35 to 65 inches: stratified coarse sand to gravelly sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Haven

Percent of map unit: 5 percent
Hydric soil rating: No

Plymouth

Percent of map unit: 5 percent
Hydric soil rating: No

Bridgehampton

Percent of map unit: 5 percent
Hydric soil rating: No

Montauk, sandy variant

Percent of map unit: 3 percent
Hydric soil rating: No

Riverhead, silt loam layers

Percent of map unit: 2 percent
Hydric soil rating: No

RhB—Riverhead and Haven soils, graded, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9x7w
Mean annual precipitation: 45 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 150 to 225 days
Farmland classification: Not prime farmland

Map Unit Composition

Riverhead, graded, and similar soils: 45 percent
Haven, graded, and similar soils: 35 percent

Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Riverhead, Graded

Setting

Landform: Outwash plains, moraines
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy glaciofluvial deposits overlying stratified sand and gravel

Typical profile

H1 - 0 to 12 inches: sandy loam
H2 - 12 to 27 inches: sandy loam
H3 - 27 to 35 inches: gravelly loamy sand
H4 - 35 to 65 inches: stratified coarse sand to gravelly sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.1 inches)

Description of Haven, Graded

Setting

Landform: Outwash plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits

Typical profile

H1 - 0 to 12 inches: loam
H2 - 12 to 19 inches: loam
BC - 19 to 28 inches: gravelly loam
C - 28 to 60 inches: stratified gravelly sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.6 inches)

Minor Components

Unnamed soils, loamy surface
Percent of map unit: 10 percent
Hydric soil rating: No

Cut and fill
Percent of map unit: 5 percent
Hydric soil rating: Unranked

Montauk, graded
Percent of map unit: 5 percent
Hydric soil rating: No

SdB—Scio silt loam, sandy substratum, 2 to 6 percent slopes

Map Unit Setting
National map unit symbol: 9x81
Elevation: 100 to 1,000 feet
Mean annual precipitation: 45 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 150 to 225 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Scio, sandy substratum, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scio, Sandy Substratum

Setting
Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Glaciolacustrine deposits, eolian deposits, or old alluvium, comprised mainly of silt and very fine sand

Typical profile
Oa - 0 to 1 inches: highly decomposed plant material
H1 - 1 to 8 inches: silt loam
H2 - 8 to 29 inches: silt loam
C - 29 to 39 inches: silt loam
2C - 39 to 60 inches: stratified gravelly sand

Properties and qualities
Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B/D
Hydric soil rating: No

Minor Components

Haven

Percent of map unit: 10 percent
Hydric soil rating: No

Walpole

Percent of map unit: 5 percent
Hydric soil rating: No

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Water Features

This folder contains tabular reports that present soil hydrology information. The reports (tables) include all selected map units and components for each map unit. Water Features include ponding frequency, flooding frequency, and depth to water table.

Water Features (Gyrodyne)

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

The *months* in the table indicate the portion of the year in which a water table, ponding, and/or flooding is most likely to be a concern.

Water table refers to a saturated zone in the soil. The water features table indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table. The kind of water table, apparent or perched, is given if a seasonal high water table exists in the soil. A water table is perched if free water is restricted from moving downward in the soil by a restrictive feature, in most cases a hardpan; there is a dry layer of soil underneath a wet layer. A water table is apparent if free water is present in all horizons from its upper boundary to below 2 meters or to the depth of observation. The water table kind listed is for the first major component in the map unit.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table			Ponding			Flooding	
				Upper limit	Lower limit	Kind	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*		*Ft*				
CpE—Carver and Plymouth sands, 15 to 35 percent slopes											
Carver	A		Jan-Dec	—	—	—	—	—	None	—	None
Plymouth, sand	A		Jan-Dec	—	—	—	—	—	None	—	None
Carver, dark subsoil				—	—	—	—	—	—	—	
Haven			Jan-Dec	—	—	—	—	—	—	—	
Montauk, sandy variant			Jan-Dec	—	—	—	—	—	—	—	
Riverhead			Jan-Dec	—	—	—	—	—	—	—	
HaB—Haven loam, 2 to 6 percent slopes											
Haven	B		Jan-Dec	—	—	—	—	—	None	—	None
Riverhead			Jan-Dec	—	—	—	—	—	—	—	
Bridgehampton			Jan-Dec	—	—	—	—	—	—	—	
Montauk			Jan-Dec	—	—	—	—	—	—	—	
Haven, thick surface				—	—	—	—	—	—	—	
Ra—Raynham loam											
Raynham, poorly drained	B/D		Jan-May	0.5-1.0	6.0	Apparent	—	—	None	—	None
			Jun-Oct	—	—	—	—	—	None	—	None
			Nov-Dec	0.5-1.0	6.0	Apparent	—	—	None	—	None
Raynham, somewhat poorly drained	B/D		Jan-May	0.5-1.5	6.0	Apparent	—	—	None	—	None
			Jun-Oct	—	—	—	—	—	None	—	None
			Nov-Dec	0.5-1.5	6.0	Apparent	—	—	None	—	None
Berryland				—	—	—	—	—	—	—	
Unnamed soils, sand and gravel substratum				—	—	—	—	—	—	—	
Unnamed soils, silt loam, very poorly drained				—	—	—	—	—	—	—	

Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table			Ponding			Flooding	
				Upper limit	Lower limit	Kind	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*		*Ft*				
RdA—Riverhead sandy loam, 0 to 3 percent slopes											
Riverhead	A		Jan-Dec	—	—	—	—	—	None	—	None
Haven			Jan-Dec	—	—	—	—	—	—	—	
Plymouth			Jan-Dec	—	—	—	—	—	—	—	
Sudbury			Jan-Dec	—	—	—	—	—	—	—	
Montauk, sandy variant				—	—	—	—	—	—	—	
Riverhead, silt loam layers				—	—	—	—	—	—	—	
RdB—Riverhead sandy loam, 3 to 8 percent slopes											
Riverhead	A		Jan-Dec	—	—	—	—	—	None	—	None
Bridgehampton				—	—	—	—	—	—	—	
Haven			Jan-Dec	—	—	—	—	—	—	—	
Plymouth			Jan-Dec	—	—	—	—	—	—	—	
Montauk, sandy variant				—	—	—	—	—	—	—	
Riverhead, silt loam layers				—	—	—	—	—	—	—	
RhB—Riverhead and Haven soils, graded, 0 to 8 percent slopes											
Riverhead, graded	A		Jan-Dec	—	—	—	—	—	None	—	None
Haven, graded	B		Jan-Dec	—	—	—	—	—	None	—	None
Unnamed soils, loamy surface				—	—	—	—	—	—	—	
Cut and fill			Jan-Dec	—	—	—	—	—	—	—	
Montauk, graded			Jan-Dec	—	—	—	—	—	—	—	

Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table			Ponding			Flooding	
				Upper limit	Lower limit	Kind	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*		*Ft*				
SdB—Scio silt loam, sandy substratum, 2 to 6 percent slopes											
Scio, sandy substratum	B/D		Jan-Feb	—	—	—	—	—	None	—	None
			Mar-May	1.5-2.0	6.0	Apparent	—	—	None	—	None
			Jun-Dec	—	—	—	—	—	None	—	None
Haven			Jan-Dec	—	—	—	—	—	—	—	
Walpole			Jan-Dec	—	—	—	—	—	—	—	

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Soil Map—Suffolk County, New York
(Gyrodyne Soil Map)

Map Scale: 1:6,360 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84

Soil Map—Suffolk County, New York
(Gyrodyne Soil Map)

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Suffolk County, New York
Survey Area Data: Version 14, Sep 24, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Suffolk County, New York (NY103)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
CpE	Carver and Plymouth sands, 15 to 35 percent slopes	1.7	2.3%
HaB	Haven loam, 2 to 6 percent slopes	4.0	5.3%
Ra	Raynham loam	1.0	1.3%
RdA	Riverhead sandy loam, 0 to 3 percent slopes	10.7	14.3%
RdB	Riverhead sandy loam, 3 to 8 percent slopes	19.2	25.7%
RhB	Riverhead and Haven soils, graded, 0 to 8 percent slopes	31.9	42.6%
SdB	Scio silt loam, sandy substratum, 2 to 6 percent slopes	6.3	8.4%
Totals for Area of Interest		**74.9**	**100.0%**

Appendix E:

Ecology Analysis

This appendix includes the 2008 proposed Gyrodyne DEIS Ecology Analysis

FREUDENTHAL & ELKOWITZ CONSULTING GROUP, INC.

This report was obtained for the 2008 Proposed DEIS for an earlier application at Gyrodyne's property, and the data herein helped inform the updated analysis in the 2019 Proposed DEIS for the Gyrodyne LLC Subdivision application.

ECOLOGICAL ANALYSIS
GYRODYNE PROPERTY
62 ACRES NORTH OF LONG ISLAND RAILROAD TRACKS
HAMLET OF ST. JAMES, TOWN OF SMITHTOWN

Prepared by:

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October 2006

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1.0 Existing Conditions

The subject site was visited on October 16 and 24, 2006 by Dr. Orland J. Blanchard, Jr. (resume annexed as Appendix A). These observations are supplemented by surveys that were made several years earlier on March 27 and on April 3, 1998 in relation to a separate assessment of the "day camp" portion of the property. Additionally, surveys in 1998 and 2002 of the "Gyrodyne" properties to the south, and in 1997 of the catering establishment to the west, have supplied further useful data for predicting likely additional on-site species.

The general visual aspect of the site is that of open fields and planted hedgerows with small naturally- wooded areas and a small area of commercial/light industrial development. An artificial pond, largely hidden by hedgerows, is also present.

A total of 167 vascular plant species were identified at the site, including 68 woody plants, 98 herbaceous plants, and one fern (see Appendix B). Additionally, the following animals were noted: 18 birds, two mammals, seven butterflies and one dragonfly (see Appendix B). No attempt was made to thoroughly inventory planted ornamental species as they are generally neither native nor spontaneously occurring, and hence are of limited ecological significance to the site.

Four ecological community types were recognized using the community classification system of Reschke (1990) as updated by Edinger *et al.* (2002): 1) Mowed Lawn (including Mowed Lawn with Trees); 2) Successional Old Field; 3) Successional Southern Hardwoods; and 4) Farm Pond/Artificial Pond (see Appendix C).[1]

[1]The annexed vegetation map is for the entire 300-acre Gyrodyne site, while the narrative herein focuses on the 62 acres, situated to the north of the railroad tracks.

Mowed Lawn/Mowed Lawn With Trees

The one vegetation type that is currently being maintained by human activity on-site is classified as Mowed Lawn (or its variant, Mowed Lawn with Trees). As such, it is enumerated among the "terrestrial cultural" communities designated by Edinger *et al*. The main extent of this vegetation type is to be found in the hedgerow-bordered fields comprising the eastern half of the site, but smaller examples are present east and north of the main commercial/industrial buildings and around the edges of these buildings themselves and the edges of their parking lots.

The lawns are, by definition, regularly mowed, and so the grasses themselves are not easily identified, but occasional weedy non-grass herbaceous species can be discerned, including Red Clover (*Trifolium pratense*), English Plantain (*Plantago lanceolata*), Sheep Sorrel (*Rumex acetosella*), Mouse-ear Chickweed (*Cerastium vulgatum*), Common Chickweed (*Stellaria media*), Dandelion (*Taraxacum officinale*), Field Garlic (*Allium vineale*), Wintercress (*Barbarea vulgaris*), Gill-Over-the-Ground (*Glechoma hederacea*), Cat's Ear (*Hypochoeris radicata*), and Evening Primrose (*Oenothera* sp.).

Where mowers do not regularly reach, such as areas close to the hedgerows, additional species escape the blade enough to be recognizable, and these include some woody perennials. Examples of herbs are Garlic Mustard (*Alliaria petiolata*), Mugwort (*Artemisia vulgaris*), Avens (*Geum* sp.), Asters (*Aster* spp.), Goldenrods (*Solidago* spp.), Wild lettuce (*Lactuca canadensis*), Heal-all (*Prunella vulgaris*), Moth Mullein (*Verbascum blattaria*) and Common St. John's Wort (*Hypericum perforatum*). Woody species include Japanese Honeysuckle (*Lonicera japonica*), Multiflora Rose (*Rosa multiflora*), Wineberry (*Rubus phoenicolasius*) and Privet (*Ligustrum* sp.).

The main mowed-lawn unit on site (and the main extent of the next vegetation type as well) is bordered and transected by narrow, evergreen single-species hedgerows. The evergreen species, listed in decreasing frequency of use on the property, are Douglas Fir (*Pseudotsuga menziesii*), Hemlock (*Tsuga canadensis*), Norway Spruce (*Picea abies*), Red Cedar (*Juniperus virginiana*) and Arborvitae (*Thuja occidentalis*). In addition, there is a rectangular enclosure in the middle of the site that is formed by a tall hedge of semi-evergreen Privets. Because these hedgerows are extremely narrow, linearly arranged, planted, and composed mostly of non-native species, they are not shown on the Vegetation Map, which is primarily intended to depict non-ornamental, non-planted vegetation.

Finally, while the main units of the Mowed Lawn/Mowed Lawn with Trees "terrestrial cultural" community type are illustrated on the accompanying Vegetation Map (see Appendix C), those units bordering the industrial buildings and parking lots are such narrow strips as to be virtually impossible to map at the scale that is being employed herein. Therefore, no attempt has been made to show them.

<u>Successional Old Field</u>

The most extensive community type on the site, Successional Old Field, generally results from the recent abandonment of cleared areas or cultivated land or lawns. The two major examples of this vegetation type differ somewhat, but are both in fairly early stages of development. One area, occupying approximately the middle one-quarter of the site, was classified as mowed lawn as recently as a 2002 survey, and consists of all or parts of several hedgerow-bordered fields west of the fields described under Mowed Lawn, above. These fields are in an early enough stage that resumption of mowing would readily return them to their former condition. Cessation of mowing has released some lawn weeds to flourish, and other opportunistic species, both herbaceous and woody, have also moved in.

In most parts of these fields, Yellow Foxtail (*Setaria pumila*) is conspicuously dominant and visible during the season of the visit; other graminoids (grasses and grass-like plants) include Broomsedge (*Andropogon virginicus*), Orchard Grass (*Dactylis glomerata*) and Purple-Top (*Tridens flavus*). Among the forbs (broad-leafed herbaceous species) species are Cat's Ear, Red Clover, Chicory (*Cichorium intybus*), Curled Dock (*Rumex crispus*), Burdock (*Arctium minus*), Black-eyed Susan (*Rudbeckia hirta*), Knapweed (*Centaurea* sp.), and Horseweed (*Conyza canadensis*). Invading woody species, mostly as young plants, include Black Locust (*Robinia pseudoacacia*), Purple Nightshade (*Solanum dulcamara*), Multiflora Rose, and Autumn Olive (*Elaeagnus umbellata*).

The second major occurrence of the Successional Old Field community type is in the separate parcel to the west that is south of both the railroad tracks and an off-site recharge basin. In general, the old field in this location is in a more advanced stage of succession than in the first area. This is particularly evident in that, in most places, graminoids comprise a much lesser part of the landscape and forbs are much more dominant and richer in their diversity.

A partial listing of the forbs includes six species of Goldenrod (*Solidago, Euthamia* -- see Appendix A), two of Aster (*Aster*), Mugwort, Common Ragweed (*Ambrosia artemisiifolia*), Broad Dock (*Rumex obtusifolius*), Cat's Ear, Common Fleabane (*Erigeron* sp.), Dandelion, English Plantain, Horseweed, Pale Knotweeed (*Polygonum lapathifolium*), Red Clover, Queen-Anne's Lace (*Daucus carota*), Common St.-John's Wort, Common Milkweed (*Asclepias syriaca*), White Campion (*Silene latifolia*), and Deptford Pink (*Dianthus armeria*). Graminoids are Timothy Grass (*Phleum pratense*), Orchard Grass, Purple-Top, Crab Grass (*Digitaria* sp.), Quack Grass (*Elytrigia repens*), Path Rush (*Juncus tenuis*), Love Grass (*Eragrostis pectinacea*), three Foxtail species (*Setaria*), Eulalia (*Miscanthus sinensis*), Deertongue Grass (*Panicum clandestinum*), Broomsedge, and Bent Grass (*Agrostis* sp.).

Shrubs, woody vines and sapling trees are also common and include: Wineberry (*Rubus phoenicolasius*), Blackberry (*R. allegheniensis*), Northern Dewberry (*R. flagellaris*), Black Raspberry (*R. occidentalis*), Flowering Dogwood (*Cornus florida*), Dwarf Sumac (*Rhus copallinum*), Staghorn Sumac (*R. typhina*), Virginia Creeper (*Parthenocissus* sp.), Multiflora Rose, Black Oak (*Quercus velutina*), Pin Oak (*Q. palustris*), White Oak (*Q. alba*), Sweet Cherry (*Prunus avium*), White Mulberry (*Morus alba*), Autumn Olive, Purple Nightshade, and Red Cedar.

Two areas of the large Successional Old Field, described above, have been planted to woody ornamentals. These areas were both described as variants of Mowed Lawn with Trees in 2002, and hence are, at present, in early old-field phases. The more eastern of these two plantings is an orchard-like mixture of several tree species including Norway Maple (*Acer platanoides*), Sweet Cherry, Mimosa, Gray Birch, Crabapple (*Pyrus* sp.) and Magnolia (*Magnolia* sp.), and perhaps others. The more western planting, which is separated from the first by recently abandoned mowed lawn, is less formal and is a mixture of trees and, mostly, shrubs. These include: Colorado Blue Spruce (*Picea pungens*), Black Cherry, Red Cedar, Rhododendron (*Rhododendron* sp.), Rose-of-Sharon (*Hibiscus syriacus*), Flowering Quince (*Chaenomeles* sp.), Yew (*Taxus* sp.), Viburnum (*Viburnum* sp.), Crabapple and Forsythia (*Forsythia* sp.), among a few others that were not readily identifiable at this season (autumn). There are also a true fruit orchard and a grape arbor to the west of this, but the larger part of each of these is on the catering facility property.

A final example of the successional old field vegetation type consists of a narrow fenced-in strip of land near the western end of the main property, situated between two off-site residences and abutting Mills Pond Road. Herbaceous plants that are common to the two main old-field occurrences described earlier are present here as well, but several invading woody shrubs and vines are different, including Porcelain Berry (*Ampelopsis brevipedunculata*), Winged Euonymus (*Euonymus alata*), Forsythia (*Forsythia* sp.), Japanese Honeysuckle (*Lonicera japonica*), and Poison Ivy (*Toxicodendron radicans*). Near the southeastern end of this unit is a small area of Norway Maple and Black Locust, indicating a transition to the successional community type described just below.

Successional Southern Hardwoods

The third vegetation type, Successional Southern Hardwoods, is found in four discrete areas that are "typical" of this successional phase, and are discussed in general herein. Two others are more unusual and are discussed separately.

In its typical manifestation, this community type is found in two places in the westernmost, separate parcel that is south of both the railroad track and the off-site recharge basin. It is also found at the easternmost end of the site just south of Route 25A; and just southeast of the large off-site parking lot that abuts Mills Pond Road.

Some of these areas are recognizable as unforested land in an aerial photograph from 1961, but most had begun to support trees by 1970, as can be seen from the relevant base aerial photograph from the *Soil Survey of Suffolk County* (Warner *et al.*, 1975, sheets numbered 39 and 54).

This vegetation type covers a wide spectrum of successional stages and hence it can be only broadly characterized. Either Black Locust or Black Cherry tends to dominate in most places, while Tree-of-Heaven (*Ailanthus altissima)*, Sassafras, Black Walnut (*Juglans nigra*), Red Cedar, and Sweet Cherry are also are present, and some one or another of these may locally take on more importance. In older examples, oaks and hickories are often present, whereas in younger examples of this vegetation type, senescent individuals of Red Cedar and Gray Birch (*Betula populifolia*) represent remnants of an even earlier, old-field stage.

This kind of forested land on the site is usually extremely viny, the trees and shrubs being covered with Grape, Greenbrier, Virginia Creeper, Asiatic Bittersweet, Porcelainberry, Japanese Honeysuckle and Poison Ivy. Multiflora Rose, Autumn Olive and Blackberry are common shrubs, while an herbaceous stratum is virtually non-existent.

Two examples of particular note are to be found in the otherwise mostly old field-lawn-planted hedgerow area in the northeastern part of the site. One consists of two "natural" rows of trees, joining at an acute angle. The rows are made up of a mixture of native and weedy, introduced broadleafed species, and may represent the remnant of old fencerow growth from an earlier use or prior ownership. If so, any associated naturally-occurring shrubs and herbs that may have also comprised the fencerow are long gone. The trees in the row include Scarlet Oak, Mockernut Hickory, Pignut Hickory, Black Locust, White Mulberry (*Morus alba*), Black Cherry, Sweet Cherry, Flowering Dogwood and some form of apple or crabapple. Vining on some of these are Poison Ivy and Virginia Creeper. This assemblage best fits the Successional Southern Hardwoods vegetation type and so it is mentioned herein, although the presence of oaks and hickories indicate a later successional stage -- an observation that is consistent with the 1961 aerial photo, which shows trees already present in those areas.

The second of the two somewhat atypical areas consists of the vegetation surrounding the steep-sided artificial pond on site (see discussion below). (The location of the shoreline is itself problematical. In the earlier 2002 visit, during a week that passed between the first and second visits to the pond, the water line had moved three or four horizontal feet as a result of an increased volume of water in the pond. Water level can be regulated at the dammed southwest end.)

On the pond borders, planted rows of Gray Birch and Red Cedars share space with a variety of mostly weedy naturally established plant species. Among these are the following tree species: Black Cherry, Flowering Dogwood, Black Locust, Mimosa (*Albizia julibrissin*), Japanese Black Pine (*Pinus thunbergii*), Sassafras and a species of Willow (*Salix* sp.). Several shrubby species were found as well: Multiflora Rose, Bayberry (*Myrica pensylvanica*), Pussy Willow (*Salix discolor*), Autumn Olive and Wineberry.

Vines include Japanese Honeysuckle and Wild Grape, while herbs, which are able to thrive because the narrowness of the woody border gives plenty of access to the sun, are represented by Broad Dock, Queen Anne's Lace, St. John's Wort, Moth Mullein, Orchard Grass, Pokeweed (*Phytolacca americana*), Field Garlic (*Allium vineale*), Mugwort, species of Aster, Wild Lettuce (*Lactuca* sp.), and Avens (*Geum* sp.).

The woody vegetation on much of the northeast end of the pond was cut or brush-hogged within approximately the last five or six years, with the result that an abundance of weeds has moved in.

Farm Pond/Artificial Pond

North of the school bus parking enclosure on the site, within a mowed, planted-hedgerowed area, there is an artificial pond that is the upstream-most of three such ponds, the other two of which are situated off-site to the southwest. Like the other two, this subject pond is excavated and steep-sided, so that little wetland vegetation is present, although the following hydrophytic species were noted low on the banks: Beggar's-Ticks (*Bidens frondosa*), Dwarf St.-Johns Wort (*Hypericum mutilum*), False-Pimpernel (*Lindernia dubia*) and Mild Water-Pepper (*Polygonum hydropiperoides*). The pond is dammed at its southwestern end and apparently is the feeder reservoir for the other two ponds, which function as water features for the catering establishment off-site to the west. It is not clear whether this pond is spring-fed or otherwise maintains its water supply.

The current timing of the ecological survey of the pond and its environs was not optimal for sampling the aquatic biota, however, an earlier (1997) unrelated survey of the two off-site connecting ponds to the southwest gave occasion to obtain and examine a water sample.

Of particular interest was the algal vegetation that was apparent in quantity throughout the basin. The principal component was the green alga *Hydrodictyon,* sometimes called Water Net. Scattered within the algal mat were typical pond-invertebrate organisms, including dragonfly nymphs (Odonata), ostracods (Ostracoda), water bugs (Hemiptera), beetle larvae (Coleoptera), water mites (Hydrachnidia), cladocerans (Branchiopoda), annelid worms (Oligochaeta), and leeches (Hirudinea). Anecdotal information from visitors suggests that there were frogs as well, and the presence of a Belted Kingfisher (*Ceryle alcyon*), indicated that the pond also supported fish.

It is reasonable to expect that the connected, on-site pond would support similar aquatic life.

Mallards, Canada Geese, and a Great Blue Heron were seen at the pond during the recent visit, and at other times elsewhere on the site and its environs, three species of dragonflies, whose immature stages are aquatic, were seen.

This artificial pond is identified as a freshwater wetland (SJ-6 on the St. James Quadrangle – Map) by the New York State Department of Environmental Conservation ("NYSDEC"). The National Wetlands Inventory has mapped it as a federal wetland classified as "POWZ," i.e. palustrine, open-water, intermittently exposed, permanent.

Animal Species

Eighteen bird species were seen on the subject site in the current (2006) survey (see Appendix B). In earlier work in 1998 and in 2002-03, a total of 22 additional species were seen on-site or in parcels immediately adjacent, as follows:

Baeolophus bicolor	Tufted Titmouse
Cardinalis cardinalis	Northern Cardinal
Carduelis tristis	American Goldfinch
Carpodacus mexicanus	House Finch

Catharus guttatus	Hermit Thrush
Colinus virginianus	Northern Bobwhite
Dendroica caerulescens	Black-throated Blue Warbler
Dumetella carolinensis	Gray Catbird
Geothlypis trichas	Common Yellowthroat
Junco hyemalis	Dark-eyed Junco
Melospiza melodia	Song Sparrow
Mniotilta varia	Black-and-white Warbler
Picoides pubescens	Downy Woodpecker
Picoides villosus	Hairy Woodpecker
Pipilo erythrophthalmus	Rufous-sided Towhee
Regulus satrapa	Golden-crowned Kinglet
Setophaga ruticilla	American Redstart
Spizella passerina	Chipping Sparrow
Spizella pusilla	Field Sparrow
Troglodytes aedon	House Wren
Vireo solitarius	Blue-headed Vireo
Zonotrichia albicollis	White-throated Sparrow

Some of these additional 22 species would undoubtedly also be seen currently on the subject site, at appropriate times of the year.

Many of the species listed above, plus many of those from the present survey (altogether, 40), are migrants or winter visitors on Long Island and rarely breed locally, if at all (eight species, i.e. 20 percent). Most of the remainder (17 species, i.e. 42 percent) have been designated locally as "common suburban birds" (Wade *et al.*, 1990). All of the remaining species (15) are known to breed on Long Island, and at least some of these probably breed on site (www.dec.state.ny.us/cfmx/extapps/bba/, accessed November 26, 2006).

It should be noted that many of the current and older observations were made during migration season, and so although some species--both observed and predicted--undoubtedly breed, those individuals seen may have been migrants rather than residents. Moreover, some species that could theoretically breed ordinarily prefer habitats not present on-site. Finally, three of the 40 birds are introduced, nuisance species: Canada Goose, European Starling and House Finch.

Two mammal species were noted at the subject site (see Appendix B). Two others were seen in an immediately adjacent parcel during earlier surveys: White-tailed Deer (*Odocoileus virginianus*) and Eastern Chipmunk (*Tamias striatus*). Wade *et al.* (1990) provide a list of mammals that are found in the Town of Brookhaven. Omitting the above four, plus those that are rare or merely "possible," and those for which the habitat of the site is clearly inappropriate (e.g. Harbor Seal), leaves a list of 19 species. (Actually it should be 20 species, as the Opossum was left out of the Brookhaven list.)

It possible to further refine the list of species that may occur on the subject site by referring to Connor's 1971 "The Mammals of Long Island, New York." Connor illustrates a forest (his Figure 1) in northern Nassau County--albeit of somewhat greater age and different species composition than the successional woods found on-site--as well as a weedy field (his Figure 11) and a grassland (his Figure 15), both further to the east on Long Island. Together, these approximate various vegetation types on the subject site. Connor's three figure captions record the following mammalian species (again omitting those already seen on the subject site):

Blarina brevicauda	Short-tailed Shrew
Microtus pennsylvanicus	Meadow Mouse
Peromyscus leucopus	White-footed Mouse
Pitymys pinetorum	Pine Mouse
Procyon lotor	Raccoon
Scalopus aquaticus	Eastern Mole
Sorex cinereus	Masked Shrew
Vulpes vulpes	Red Fox

Undoubtedly several of these use the subject site. Moreover, given the somewhat more varied habitat on-site, including a human presence, it would not be surprising to see such additional species as Opossum, Norway Rat and House Mouse.

No herpetofaunal species were seen during the recent site visits but the Eastern Box Turtle was observed nearby in earlier surveys. A prediction as to the other likely reptiles and amphibians that use the site may be made by considering the New York State Amphibian and Reptile Atlas Project (www.dec. state.ny.us/website/dfwmr/wildlife/herp/, accessed November 26, 2006) and lists in Schlauch (1978) and Sabin (1995).

The atlas project spanned the decade 1990-1999, recording reptile and amphibian species by 7.5-minute USGS topographic quadrangles. The subject site lies within the area covered by the "Saint James, N.Y." topographic quadrangle, and eight species in addition to the Eastern Box Turtle were recorded from that quadrangle. They are:

Pseudacris c. crucifer	Northern Spring Peeper
Rana catesbeiana	Bullfrog
Rana clamitans melanota	Green Frog
Chelydra s. serpentina	Common Snapping Turtle
Malaclemys t. terrapin	Northern Diamondback Terrapin
Trachemys scripta elegans	Red-eared Slider
Chrysemys p. picta	Eastern Painted Turtle
Plethodon cinereus	Red-backed Salamander

Except for the Northern Diamondback Terrapin, which is a salt- or brackish-water turtle, any of the above species might occur on the subject site. The six frogs and turtles all are obligately associated with standing fresh water and if they were present they would be largely confined to the small pond on-site.

It should be noted that the Red-eared Slider is not native to the Northeast and has become established locally only through the escape or release of pet or captive animals.

When herpetofaunal lists published by Schlauch from Nassau County and by Sabin from the South Fork are compared, five species emerge as the most common terrestrial species on Long Island. Two are the Red-backed Salamander of the atlas list and the Eastern Box Turtle of a fairly recent inventory; the remaining three are the Fowler's Toad (*Bufo woodhousii fowleri*), the Eastern Garter snake (*Thamnophis sirtalis*) and the Northern Black Racer (*Coluber constrictor constrictor*). It is likely that some or all of these may also occur on-site.

Most of the seven species of butterflies recorded at the subject site (see Appendix B) are species that are active quite late in the season, i.e. October. The following 10 additional species were seen in earlier surveys of immediately adjacent properties within the last seven or eight years, in the period extending from August through October:

Atalopedes campestris	Sachem
Epargyreus clarus	Silver-spotted Skipper
Everes comyntas	Eastern Tailed Blue
Lycaena phlaeas	American Copper
Nymphalis antiopa	Mourning Cloak
Papilio troilus	Spicebush Swallowtail

Phoebis sennae	Cloudless Sulfur
Phyciodes tharos	Pearl Crescent
Polites themistocles	Tawny-edged Skipper
Vanessa atalanta	Red Admiral

Since different butterfly species often have different, frequently short flight periods, it is useful to consider other surveys done at different seasons. The following eight additional species were seen within the last 20 years at two other nearby large sites in habitats similar to those at the subject site, but mostly at seasons other than when the subject site was visited.

Cercyonis pegala	Common Wood Nymph
Limenitis arthemis astyanax	Red-spotted Purple
Megisto cymela	Little Wood Satyr
Poanes hobomok	Hobomok Skipper
Poanes zabulon	Zabulon Skipper
Polites peckius	Peck's Skipper
Satyrium liparops	Striped Hairstreak
Satyrium titus	Coral Hairstreak

Any of these might also occur on the subject site.

No rare, endangered or threatened plant or animal species or ecological communities were found at the site (see NHP, 2003; Young & Weldy, 2006). Likewise, replies from the New York Natural Heritage Program ("NHP") to various inquiries about information in its data base produced no records of rarities on or near the subject site (Carole Flood, April 17, 1998; Kirsten Seleen, September 25, 1998, *in litt.*).

Three plant species found on the “Gyrodyne” site are listed by NYSDEC as being "exploitably vulnerable." They are:

Cornus florida	Flowering Dogwood
Myrica pensylvanica	Bayberry
Thelypteris noveboracensis	New York Fern

Species of this type are thought to be threatened by extensive gathering from the wild, for commercial purposes. While this may happen, it is unlikely to occur on the present, protected site, especially since none of these plants grows in a density or abundance that would make exploitation worthwhile. The property owner is entirely free to remove or transplant these plants.

Two of the above plants are woody species, and the third is a fern. Consultation of the distribution maps in the "Metropolitan Flora Woody Plant Workbook" (Clemants, 1999) shows that both of the woody plants occur on Long Island with high frequency (pp. 144 and 204). Similarly, the "Preliminary Atlas of the Ferns & Fern Allies of Long Island, NY" (Long Island Botanical Society Flora Committee, 1994) shows the New York Fern to be widely distributed and currently well known.

In contrast to the above list of three species, the site supports 10 of the "top 20 invasive plant species in New York" (see Jordan, 2002). These 10 are:

Acer platanoides	Norway Maple
Alliaria petiolata	Garlic Mustard
Ampelopsis brevipedunculata	Porcelainberry
Celastrus orbiculata	Asiatic Bittersweet
Centaurea maculosa	Spotted Knapweed
Elaeagnus umbellata	Autumn Olive
Lonicera japonica	Japanese Honeysuckle
Lonicera morrowi	Fly Honeysuckle
Robinia pseudoacacia	Black Locust
Rosa multiflora	Multiflora Rose

2.0 Potential Impacts and Mitigation

Based upon a review of the proposal, the two successional communities on site will both be reduced in extent by the proposed development. Approximately one-half of the Successional Southern Hardwoods will remain; the Successional Old Field will be reduced to about one-third of its original extent. These remaining communities will exist primarily as buffers along the northern and western periphery of the site.

The maintained "cultural" community designated Mowed Lawn/Mowed Lawn with Trees will likewise be reduced to a small fraction of its original extent, potentially one-quarter, and will survive virtually solely as buffer along the west side of the property adjacent to North Country Road (Route 25A).

The small pond on the site, a NYSDEC-mapped wetland, constitutes the fourth natural community type (Farm Pond/Artificial Pond). It is proposed to be expanded, and in the process, its shores as they currently exist will be obliterated, and most likely the bottom will be dredged. In any event, the pond will endure extensive disturbance. Upon completion, it may also become somewhat degraded by the increased use of fertilizers typically associated with normal lawn maintenance practices.

While many larger, more mobile animals (e. g., adult birds and mammals) that currently occur on the site will be able to emigrate as development of the site proceeds, some others that are young, small or otherwise slow-moving will perish. These may include, for example, some young mice, young voles, snakes, toads, insects, spiders and ticks.

All three of the terrestrial ecological communities represented on the subject site are either 1) "cultural," i.e. man-made or maintained by human activity, or 2) are in various stages of recovery (succession) following earlier episodes of virtually total deforestation to create crop land. Most of this area was in cultivation at least as early as 1954 and has remained unforested to the present day.

While the man-made pond on the site will be disturbed in the process of expanding it, the resulting pond will be two-to-three times larger than the present one. Moreover, a variety of plantings will be introduced, thereby promoting habitat diversity. When it eventually stabilizes, and assuming that it is not actively managed otherwise, the new pond will gradually become populated by plant and animal species that will find their way from the adjacent off-site ponds and elsewhere.

No rare plants, rare animals or rare ecological communities were found on the subject site despite many hours of fieldwork during which time nearly 200 species of organisms were documented. Likewise, the NHP reported no records of rare entities on or near the subject site.

While some individual animals displaced during the construction phase of development, and even some entire species, would not be expected to return post-development, still others would find themselves at home in the new circumstances and would be expected to re-colonize. For example, approximately 56 percent of the bird species that were actually observed at the site during the present survey, are listed by the Town of Brookhaven as "common suburban birds." These would be expected to re-establish themselves readily.

Buildings and paved areas are not extensively addressed under the existing ecological conditions. Nonetheless they are present, especially at the southern end of the site. The transformation of other parts of the site into residential structures with associated paved drives will be at least partially mitigated by the removal of at least two existing large paved parking lots and four large buildings from the southern part of the site.

Likewise, although the planted hedgerow/windbreaks on the site were addressed only briefly in the existing ecological conditions section, it appears from the proposed plan that an attempt is being made to save many of the hedgerow conifers by incorporating them into the edges of the proposed loop drive at the north end of the site, between the drive and the residential parking lots.

Although the extent of the various ecological communities on-site will change considerably with development, the overall ecological diversity will remain largely the same.

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APPENDIX A

Orland J. Blanchard, Jr., Ph.D.
Freudenthal & Elkowitz Consulting Group, Inc.
1757-24 Veterans Memorial Highway, Islandia, New York 11749
Telephone: (631) 499-2222 / Facsimile: (631) 499-5928

PRESENT POSITION:

Dr. Blanchard is a Senior Environmental Scientist with Freudenthal & Elkowitz Consulting Group, Inc. who specializes in ecology and is a Professor of Biology at Long Island University, C.W. Post Campus.

PROFESSIONAL EXPERIENCE:

Dr. Blanchard is a broadly trained and respected field biologist with an extensive knowledge of the biota of the Northeast and with a range of expertise in wetlands evaluation, botanical and invertebrate inventory and the study of rare and endangered plants and animals.

Prior to establishing himself on Long Island in 1980, Dr. Blanchard lived and studied in Massachusetts, upstate New York and Indiana. Teaching and field research have taken him throughout the United States and to the West Indies, Mexico, Central America, and East Africa.

Dr. Blanchard has been active as a consultant and contractee since 1984, working directly or indirectly for such clients as the City of New York, the State Department of Transportation, the State Department of Environmental Conservation, the New York Natural Heritage Program and The Nature Conservancy. This work has included freshwater wetlands flagging and classification, botanical inventories, insect inventories, rare insect surveys, tiger salamander searches, and studies of the ecology of the federally endangered sandplain gerardia.

Dr. Blanchard has been associated with Freudenthal & Elkowitz Consulting Group, Inc. since 1989, and representative projects for which Dr. Blanchard has performed ecological investigations include:

- NYSDEC Wetland delineation and ecological assessment for 20+ acre proposed residential subdivision in Brookhaven;
- Ecological impact assessments as part of environmental impact statements prepared by Freudenthal & Elkowitz Consulting Group, Inc. throughout Long Island;
- NYSDEC and USACOE wetland delineation and ecological assessment for 23+ acre proposed residential development in Kings Point; and

PROFESSIONAL EXPERIENCE: (Cont'd.)

- Ecological investigation for proposed 22+ acre commercial center in Stony Brook.

Dr. Blanchard is a recognized field biologist on Long Island. Dr. Blanchard is a past President (1988-89) of the Long Island Botanical Society; and has served as member and Chairman of a committee that is preparing an atlas of the plants of Long Island; a past member of the Board of Trustees of The Nature Conservancy in which capacity he served as Chairman of the Board's Stewardship Committee; and member of the Natural History Advisory Board of the Friends of Long Island Heritage. He has been a member and Chairman of the Advisory Committee of the New York Flora Association. At the present time he is collaborating with a fellow botanist on a comparative study of the grasslands of Long Island.

In his academic capacities, Dr. Blanchard has taught graduate courses in Ecology, Entomology and Vascular Plants of Long Island, and as Director of the Graduate Environmental Studies Program at C.W. Post he has established numerous contacts in the environmental community on the Island.

EDUCATION:

Ph.D., Botany, Cornell University, 1976 (major: Plant Taxonomy; minors: Plant Ecology and Entomology)

A.B., Biology, Clark University, 1966

APPENDIX B

ECOLOGICAL INVENTORY

Trees, Shrubs And Woody Vines

Acer platanoides	Norway Maple
Acer rubrum	Red Maple
Acer saccharinum	Silver Maple
Ailanthus altissima	Tree-of-Heaven
Albizia julibrissin	Mimosa
Ampelopsis brevipedunculata	Porcelainberry
Aralia elata	Japanese Angelica Tree
Betula lenta	Black Birch
Betula populifolia	Gray Birch
Carya glabra	Pignut Hickory
Carya tomentosa	Mockernut Hickory
Celastrus orbiculatus	Asiatic Bittersweet
Chaenomeles sp.	Flowering Quince
Cornus florida	Flowering Dogwood
Elaeagnus umbellata	Autumn Olive
Euonymus alata	Winged Euonymus
Fagus grandifolia	American Beech
Forsythia sp.	Forsythia
Fraxinus americana	White Ash
Gleditsia triacanthos	Honey-Locust
Hedera helix	English Ivy
Hibiscus syriacus	Rose-of-Sharon
Ilex opaca	American Holly
Juglans nigra	Black Walnut
Juniperus virginiana	Red Cedar
Ligustrum sp.	Privet
Liriodendron tulipifera	Tulip-Tree
Lonicera japonica	Japanese Honeysuckle
Lonicera morrowi	Fly Honeysuckle
Lonicera sp.	Honeysuckle
Malus sieboldii	Toringo Crabapple
Morus alba	White Mulberry
Myrica pensylvanica	Bayberry
Parthenocissus sp.	Virginia Creeper
Picea abies	Norway Spruce
Picea pungens	Colorado Blue Spruce
Pinus thunbergii	Japanese Black Pine
Populus grandidentata	Big-toothed Aspen

Trees, Shrubs And Woody Vines (Cont'd.)

Prunus avium	Sweet Cherry
Prunus serotina	Black Cherry
Pseudotsuga menziesii	Douglas Fir
Pyrus malus	Apple
Quercus alba	White Oak
Quercus coccinea	Scarlet Oak
Quercus palustris	Pin Oak
Quercus velutina	Black Oak
Rhododendron sp.	Rhododendron
Rhodotypos scandens	Jetbead
Rhus copallinum	Dwarf Sumac
Rhus glabra	Smooth Sumac
Rhus typhina	Staghorn Sumac
Robinia pseudoacacia	Black Locust
Rosa multiflora	Multiflora Rose
Rubus allegheniensis	Blackberry
Rubus flagellaris	Northern Dewberry
Rubus occidentalis	Black Raspberry
Rubus phoenicolasius	Wineberry
Salix discolor	Pussy Willow
Salix sp.	Willow
Sassafras albidum	Sassafras
Smilax rotundifolia	Greenbrier
Solanum dulcamara	Purple Nightshade
Taxus sp.	Yew
Tilia sp.	Linden
Toxicodendron radicans	Poison Ivy
Tsuga canadensis	Northern Hemlock
Viburnum sp.	Viburnum (ornamental)
Vitis sp.	Grape

Herbaceous Plants

Acalypha rhomboidea	Three-Seeded Mercury
Agrostis sp.	Bent Grass
Alliaria petiolata	Garlic Mustard
Allium vineale	Field Garlic
Ambrosia artemisiifolia	Common Ragweed
Andropogon virginicus	Broomsedge
Anthoxanthum odoratum	Sweet Vernal Grass
Apocynum cannabinum	Indian Hemp
Apocynum medium	Indian Hemp
Arctium minus	Burdock
Artemisia vulgaris	Mugwort
Asclepias syriaca	Common Milkweed
Aster divaricatus	White Wood Aster
Aster ericoides	Heath Aster
Aster lanceolatus	Panicled Aster
Aster lateriflorus	Calico Aster
Barbarea vulgaris	Winter Cress
Bidens frondosa	Beggar's-Ticks
Calystegia sepium	Hedge Bindweed
Centaurea maculosa	Spotted Knapweed
Centaurea nigrescens	Knapweed
Cerastium vulgatum	Mouse-Ear Chickweed
Chenopodium album	Lamb's Quarters
Cichorium intybus	Chicory
Cirsium sp.	Thistle
Cirsium vulgare	Bull Thistle
Conyza canadensis	Horseweed
Cyperus strigosus	Nutgrass
Dactylis glomerata	Orchard Grass
Daucus carota	Queen Anne's Lace
Dianthus armeria	Deptford Pink
Digitaria ischaemum	Smooth Crabgrass
Digitaria sanguinalis	Crabgrass
Duchesnea indica	Indian Strawberry
Elytrigia repens	Quack Grass
Eragrostis pectinacea	Love Grass
Erigeron sp.	Daisy Fleabane
Eupatorium rugosum	White Snakeroot
Euthamia graminifolia	Grass-leafed Goldenrod
Festuca sp.	Fescue

Herbaceous Plants (Cont'd.)

Geranium sibiricum	Siberian Geranium
Geum sp.	Avens
Glechoma hederacea	Gill-over-the-Ground
Hieracium sp.	Hawkweed
Hypericum mutilum	Dwarf St. John's Wort
Hypericum perforatum	Common St. John's Wort
Hypochaeris radicata	Cat's Ear
Juncus tenuis	Path Rush
Lactuca canadensis	Wild Lettuce
Lactuca serriola	Prickly Lettuce
Lepidium virginicum	Peppergrass
Linaria vulgaris	Butter-and-Eggs
Lindernia dubia	False-Pimpernel
Lobelia inflata	Indian Tobacco
Miscanthus sinensis	Eulalia
Muhlenbergia schreberi	Nimblewill
Oenothera sp.	Evening Primrose
Oxalis sp.	Yellow Wood Sorrel
Panicum clandestinum	Deertongue Grass
Panicum dichotomiflorum	Fall Panicum
Phleum pratense	Timothy Grass
Phytolacca americana	Pokeweed
Plantago lanceolata	English Plantain
Plantago major	Common Plantain
Poa annua	Speargrass
Polygonum cespitosum	Smartweed
Polygonum hydropiperoides	Mild Water-Pepper
Polygonum lapathifolium	Pale Smartweed
Polygonum persicaria	Lady's Thumb
Potentilla recta	Rough-fruited Cinquefoil
Potentilla sp.	Cinquefoil
Prunella vulgaris	Heal-All
Ranunculus sp.	Buttercup
Rudbeckia hirta	Black-eyed Susan
Rumex acetosella	Sheep Sorrel
Rumex crispus	Curled Dock
Rumex obtusifolius	Broad Dock
Setaria faberi	Giant Foxtail
Setaria pumila	Yellow Foxtail
Setaria viridis	Green Foxtail
Silene latifolia	White Campion

Herbaceous Plants (Cont'd.)

Solidago canadensis	Canada Goldenrod
Solidago juncea	Early Goldenrod
Solidago nemoralis	Gray Goldenrod
Solidago odora	Sweet Goldenrod
Solidago rugosa	Rough-stemmed Goldenrod
Solidago sp.	Goldenrod
Solidago speciosa	Showy Goldenrod
Solanum carolinense	Horse-Nettle
Stellaria media	Common Chickweed
Taraxacum officinale	Dandelion
Tragopogon pratensis	Goatsbeard
Tridens flavus	Purple-Top
Trifolium pratense	Red Clover
Trifolium repens	White Clover
Verbascum blattaria	Moth Mullein
Verbascum thapsus	Common Mullein
Viola sororia	Common Blue Violet

Ferns And Fern Allies

Thelypteris noveboracensis	New York Fern

Birds

Agelaius phoeniceus	Red-winged Blackbird
Anas platyrhynchos	Mallard
Ardea herodias	Great Blue Heron
Bombycilla cedrorum	Cedar Waxwing
Branta canadensis	Canada Goose
Colaptes auratus	Northern Flicker
Corvus brachyrhynchos	American Crow
Cyanocitta cristata	Blue Jay
Dendroica coronata	Yellow-rumped Warbler
Melanerpes carolinus	Red-bellied Woodpecker
Mimus polyglottos	Northern Mockingbird
Poecile atricapillus	Black-capped Chickadee
Regulus calendula	Ruby-crowned Kinglet
Sayornis phoebe	Eastern Phoebe
Sturnus vulgaris	European Starling
Thyrothorus ludovicianus	Carolina Wren
Turdus migratorius	American Robin
Zenaida macroura	Mourning Dove

Mammals

Sylvilagus floridanus	Eastern Cottontail
Sciurus carolinensis	Gray Squirrel

Butterflies

Colias eurytheme	Orange Sulfur
Colias philodice	Clouded Sulfur
Danaus plexippus	Monarch
Everes comyntas	Eastern Tailed Blue
Junonia coenia	Common Buckeye
Pieris rapae	Cabbage White
Strymon melinus	Gray Hairstreak

Dragonflies

Anax junius	Green Darner

APPENDIX C

Appendix F:

Traffic Impact Study

TRAFFIC IMPACT STUDY

PROPOSED SUBDIVISION OF GYRODYNE, LLC

MILLS POND ROAD AT NYS ROUTE 25A
HAMLET OF ST. JAMES
TOWN OF SMITHTOWN
SUFFOLK COUNTY, NEW YORK

PREPARED FOR

TOWN OF SMITHTOWN

PREPARED BY

CAMERON ENGINEERING

OCTOBER 2017 / REVISED JULY 2018

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1. Summary and Conclusions

Gyrodyne LLC proposes to subdivide Gyrodyne's 74.98-acre Flowerfield property between NYS Route 25A, Mills Pond Road, the LIRR tracks, adjacent to SUNY Stony Brook in St. James, Town of Smithtown, Suffolk County. This report is a summary of the potential traffic impacts of the application.

1. As this is solely an application for a subdivision, there is no specific redevelopment plan in place. Gyrodyne LLC has considered a number of land use combinations that meet Town of Smithtown zoning requirements such as parking, setbacks, and all Town-required design elements; sufficient room and setback for the proposed wastewater treatment plant; no required change of zone; and synergies with Stony Brook University (which in this study, includes the University, the Research and Development Park, and the Medical Center), and Flowerfield Celebrations catering hall. The land use mix also satisfies identified needs in Gyrodyne's market studies. Following the proposed subdivision, the actual land use mix will be determined as the lots are developed. However, for the purpose of evaluating the potential impact of the future development, a land use mix was proposed, and can be considered one of many options that could achieve these goals.

2. The proposed subdivision is not necessarily the final land use mix, but it is one of several to achieve these goals and develop the subdivided lots. This detailed analysis was prepared so that the eventual developing entity/entities can rely on this traffic study (and its associated DEIS) and the Town's findings to develop individual lots and install any necessary traffic mitigation. To that end, potential alternate uses for the subdivided property were developed, keeping within a level of trip generation that can be successfully accommodated on the area roadways with appropriate mitigation measures. The aim is for this study to capture potential traffic impacts even if the eventual land use mix and/or size of individual land uses is different from the subdivision analyzed in this report.

3. One alternative that is not being proposed, but which could be implemented as of right without a subdivision, is a new 244,000 square foot medical office building. That alternative would generate 15% to 30% more traffic during the respective weekday AM and PM peak hour periods and would cause unacceptable off-site traffic impacts. The proposed mix of uses helps minimize the traffic generation potential at this site.

4. The anticipated land use yields for the subdivided lots are as follows:

   <u>*Existing uses on two lots:*</u>

   - Lot 1: the existing light industrial uses (four buildings)
   - Lot 2: the existing Flowerfield Events catering hall

<u>*Potential new uses on up to seven (7) additional lots:*</u>

- Lot 3: a ±2.15-acre lot to be utilized for landbanked parking to serve potential overflow parking from Lot 1 (existing light industrial uses)
- Lot 4: a 150-room hotel with a 150-seat restaurant and a 10,000 s.f. day spa/fitness center
- Lots 5 and 6: the two lots together would have 130,000 square feet of medical office, general office, or technical R&D office space, developed separately or as one larger lot
- Lots 7 and 8: the two lots together would have 220 assisted living units, developed separately or as one larger lot
- Lot 9: commonly-owned and operated open space, internal roads, sidewalks, drainage, and a wastewater treatment plant (WWTP) to handle existing and proposed land uses

5. The following key intersections were included in this report:
   1. Route 25A at Mills Pond Road
   2. Route 25A at Stony Brook Road
   3. Route 25A at Lake Avenue
   4. Route 25A at Moriches Road
   5. Moriches Road at Lake Avenue
   6. Moriches Road at Mills Pond Road
   7. Moriches Road at Woodlawn Avenue
   8. Route 347 at Moriches Road
   9. Route 25A at Main Street
   10. Stony Brook Road at South Drive
   11. Stony Brook Road at Oxhead Road
   12. Stony Brook Road at Hallock Road
   13. Stony Brook Road at Route 347
   14. Mills Pond Road Site Access 1
   15. Mills Pond Road Site Access 2
   16. Route 25A Site Access (future)
   17. Stony Brook Road at Development Drive

   Several of the traffic study intersections are further than one mile from the Gyrodyne property, which expands the scope beyond Institute of Transportation Engineers (ITE) recommended practice. Further intersections, such as those on Route 347 (intersections #8 and #13), were included to provide a logical, connected grid around the property.

6. Existing volumes were counted in February 2017, except intersection #17 was added to the scope later and was counted in March 2018. Traffic counts were adjusted for seasonal variations to an average month.

7. The No Build condition includes a 1.1% per year ambient growth rate plus traffic associated with other planned projects that could impact traffic volumes by 2020. The “other projects” include full occupancy at the existing mixed-use industrial buildings, a near-peak Saturday midday event at the catering hall (based on five years of attendance data), and a proposed 200,000 square foot research and development office building at the Stony Brook Research and Development Park. A separate 70,000 business development office at the Research and Development Park will not come online until after 2020 and was not included.

8. The potential yield of the subdivision would generate 329 trips during the AM peak hour (242 entering, 87 exiting), 497 trips during the PM peak hour (162 entering, 336 exiting), and 291 trips during the Saturday peak hour (159 entering, 132 exiting). These numbers represent the net trip generation compared to the existing uses (industrial buildings and the Flowerfield catering hall, which will remain).

9. Site access: The site will retain its existing unsignalized driveways on Mills Pond Road. The existing curb cut on Route 25A near the northeast corner of the property will be repurposed as access to the proposed WWTP and for emergency access. There will be a new driveway on Route 25A roughly halfway along the site frontage to serve the proposed subdivision; the location provides improved sight lines and facilitates internal circulation. Per NYSDOT direction, the driveway will be configured to only allow right turns in and right turns out. All site driveways will be controlled with stop signs controlling exits from the property (no traffic signals). The existing and proposed site driveways do not warrant traffic signals.

10. Alternative traffic analysis without the right-turn-only driveway on Route 25A indicates significantly higher traffic that would challenge the intersection of Route 25A-Mills Pond Road. Without this driveway, the intersection and its approaches would need to be widened (encroaching on private property, green space, and the Route 25A buffer) to facilitate additional turn lanes on Route 25A and on Mills Pond Road, for at least 250 feet in all directions. This would have a far greater adverse aesthetic impact than the proposed right-in/right-out access on Route 25A, so the Route 25A driveway is a necessary component of the subdivision to properly disperse site traffic.

11. Gyrodyne has been actively coordinating the proposed re-opening of the railroad crossing between Gyrodyne and the Stony Brook University Research and Development Park ("R & D Park"). While significant progress has been made in this effort, including support from Stony Brook University, there is still a degree of uncertainty as to when this might be accomplished. Accordingly, Gyrodyne has modified the proposed Preliminary Subdivision Map to clarify the railroad crossing as a "possible/future re-opening of railroad crossing". The updated Preliminary Subdivision Map would not result in the re-opening the railroad crossing.

12. Two intersections on Route 25A (Mills Pond Road and Stony Brook Road) warrant a traffic signal based on existing traffic volumes, without the proposed subdivision or the other planned projects in the area. In fact, traffic conditions at Route 25A-Mills Pond Road warranted a traffic signal going back at least ten years (2007), and NYSDOT had issued correspondence in agreement (see Appendix I: NYSDOT Correspondence Related to Route 25A-Mills Pond Road Signal).

13. Per request by NYSDOT, Cameron Engineering also examined the ability to install a roundabout at these two intersections. NYSDOT is in the process of conducting an alternatives analysis at 25A-Stony Brook Road to decide between a signal and a roundabout.

14. A roundabout is not feasible at Route 25A-Mills Pond due to a nearby mapped wetland. The subdivision application will include a request to NYSDOT to signalize this intersection, add short turn lanes on some approaches, and modify the pavement markings as necessary.

15. A roundabout at Route 25A-Stony Brook Road would need two lanes for approaches and two circulating lanes, and would involve property acquisition that would not be a factor for a signalized reconfigured intersection. A roundabout or a signal would vastly improve traffic flow at the 25A-Stony Brook Road intersection. The final decision is up to NYSDOT.

16. Four additional study intersections on Stony Brook Road will require minor signal modifications (adding/shifting signal faces, etc.) and pavement marking changes to accommodate short turn lanes within existing right-of-way and existing pavement width. Physical widening is not proposed at these locations.

    Especially at Stony Brook Road-South Drive (and at Oxhead Road to a lesser extent), the southbound left turns comprise such a high percentage of total southbound traffic, that adding a left turn lane and a turn will vastly improve traffic flow and remove conflict compared to what happens today, with minimal changes beyond the confines of the intersection. In fact, in the morning peak hour, southbound left turns from Stony Brook Road onto South Drive comprise 67% of the southbound approach traffic. The left turn volume is 337 vehicles per hour, which merits a left turn lane and left turn arrow already, before the proposed subdivision is accounted for.

17. The proposed off-site traffic mitigation and improvements will address some existing safety issues, based on a study of three years of accident data that indicate high incidences of right angle collisions at 25A-Stony Brook Road, and of rear end and left turn collisions at 25A-South Drive.

18. For the remaining intersections, there will not be any significant movement or overall LOS changes, and the largest delay increase to individual lane groups will be reasonable and/or too small for drivers to notice, so mitigation will not be necessary.

2. Background

2.1 Purpose of Report

Gyrodyne, LLC. ("Gyrodyne") proposes a subdivision of ±74.98 acres with two existing uses to remain as subdivided lots. Approximately 130,526 square feet of existing light industrial uses in 151,900 s.f. of building space would remain on one of the subdivided lots and the Flowerfield Celebrations catering hall would remain on another subdivided lot. The Gyrodyne property is on the south side of North Country Road/NYS Route 25A, the east side of Mills Pond Road, and the north side of the Long Island Rail Road (LIRR) line in St. James in the Town of Smithtown. Gyrodyne is proposing to subdivide the overall site into up to nine (9) lots, including two lots for the two sets of existing uses. The site and the surrounding road network are shown in Figure 2-1 at the end of this chapter.

Currently, there is no specific redevelopment plan in place. Gyrodyne LLC has considered a number of land use combinations that meet the following criteria:

- Sufficient on-site parking
- Buildings meet required setbacks and all zoning requirements
- The land uses must not require a change of zone
- Synergy with Stony Brook University, Stony Brook University Medical Center, and Flowerfield Celebrations catering hall
- Comply with the findings of detailed market analysis

The proposed subdivision is not necessarily the final land use mix, but it is one of several to achieve these goals and develop the subdivided lots. This detailed analysis was prepared so that the eventual developing entity/entities can rely on this traffic study (and its associated DEIS) and the Town's findings to develop individual lots and install any necessary traffic mitigation.

Two lots would comprise the existing buildings and the remaining lots could potentially be developed with the following uses:

Existing uses:

- Lot 1: the existing light industrial uses
- Lot 2: the existing Flowerfield Celebrations catering hall

Potential new uses:

- Lot 3: to be used for landbanked parking that could be built in the future if necessary. It would serve potential overflow for the existing industrial uses on Lot 1.

- Lot 4: envisioned as a 150-room hotel with a 150-seat restaurant, a 500-seat conference space, and a 10,000 square foot day spa/fitness center. The hotel would complement the catering hall, on-site offices, Stony Brook University, and Stony Brook Medical Center.
- Lots 5 and 6: envisioned as 130,000 square feet of medical office, general office, or technical R&D office space that would support Stony Brook University, Stony Brook University Medical Center, and/or the University's Research and Development Park. The lots could be developed separately or as one larger lot.
- Lots 7 and 8: envisioned as 220 assisted living units that could be developed separately or in one combined larger lot. There would be a synergy with the University Medical Center and with the subdivision's medical office space for residents' medical care.
- Lot 9: a commonly-owned and operated lot encompassing ±24 acres of open space, the internal road network, drainage, and a proposed wastewater treatment plant (WWTP) to serve the existing and proposed uses.

Cameron Engineering performed a detailed traffic investigation of the traffic impacts of the proposed subdivision and potential redevelopment on the adjacent street system. This study reviews the area's existing roadway characteristics and traffic conditions (including traffic volumes, traffic flow quality, and geometry), determines future conditions if the site is not subdivided and developed by 2020, estimates the potential peak-period trip generation, and assesses the effect of this additional traffic on the surrounding roads.

2.2 Study Methodology

A. Review the Existing Conditions on the subject property and in the surrounding area

- Examine the subdivision plan, local ordinances, and other application materials.
- Determine the Average Annual Daily Traffic [AADT] volumes near the property using New York State Department of Transportation [NYSDOT] 24-hour data.
- Visit the site to observe prevailing traffic conditions and nearby physical features, and to identify "key intersections" that this proposal might impact.
- Perform traffic counts at the key intersections during weekday AM (7:00-9:00 am), PM (4:00-6:00 pm), and Saturday midday (11:00 am-2:00 pm) peak traffic periods to establish the existing peak hour volumes.
- At three intersections (including two Flowerfield site driveways), extend the weekday traffic counts to include 7:00-10:00 am and 3:00-6:00 pm, and count traffic during the 60-90 minute timeframes around the start and end times of two catering hall events: a 150-guest wedding and a 150-person Fire Department dinner.

- Analyze the counts and make seasonal adjustments as needed to determine the AM, PM, and Saturday midday peak hour volumes.
- Determine the existing levels of service (LOS) at the study intersections using *Synchro* version 10, a software package that complies with the guidelines of the *Highway Capacity Manual 6*. Locations in close proximity to each other were analyzed together, while isolated locations were analyzed separately.
- Analyze the latest available three years of accident data for the segments of Route 25A from Mills Pond Road to just past Main Street, and Stony Brook Road from Route 25A to just past Hallock Road.

B. Determine the "No Build" Scenario: Future Conditions if the site is not subdivided and developed with new uses

- Obtain the area's ambient growth rate from the New York State Department of Transportation (NYSDOT) to account for general population growth.
- Correspond with Town of Smithtown staff and research information about Stony Brook University Research and Development Park ("R & D Park") expansion to determine if there are any other projects being planned nearby, whose traffic has the potential to affect the key intersections by 2020. Project on-site traffic with a busier catering hall event, full occupancy in the existing Lot 1 buildings, and the IDC proposed at the R & D Park.
- These features provide the expected future traffic volumes in 2020 if the site is not subdivided and developed with additional uses (the "No Build" scenario). Use *Synchro* to determine future No Build levels of service.

C. Determine the "Build" Scenario: Future Conditions if the site is subdivided and developed with new uses

- Discuss existing and proposed site access, and the need for any auxiliary lanes or traffic signals at existing or proposed driveways.
- Determine the number of parking spaces required by the Town, and determine if parking needs on the site will be met, using Town code. Utilize data in the manual, *Parking Generation* (4th Edition) published by the Institute of Transportation Engineers (ITE) to support landbanking certain parking to maintain green space.
- Calculate the volumes typically generated during peak hours by the site's potential yield, using the ITE manual, *Trip Generation* (10th Ed.), published in 2017.

- Describe the intended synergies between the proposed subdivision uses, Flowerfield Celebrations, and Stony Brook University. Describe how people traveling between on-site areas can do so without utilizing local streets.
- Distribute site-generated traffic to specific movements at the key intersections. Adding the site traffic to the No Build volumes yields the expected future traffic volumes if the project is constructed (the “Build” scenario).
- Use *Synchro* to determine the future Build levels of service, with the site driveways as proposed. Confirm the need for the right-turn-only Route 25A driveway by determining the alternate levels of service at Route 25A-Mills Pond Road with vs. without this driveway.

D. Determine the traffic impact (if any) of the proposed subdivision

- Compare the “No Build” and “Build” levels of service. Any difference between the two scenarios indicates an initial impact on traffic conditions.
- Address impacts by proposing mitigation. Any scenario that includes a mitigation measure is labeled the “Mitigated Build” condition.
- The comparison between the “No Build” and either the “Build” or “Mitigated Build” scenarios indicates the viability of the proposed subdivision and future development with respect to traffic conditions.

Figure 2-1: Project Location Map

Map Source: N.Y. Statewide Digital Orthoimagery Program (NYSDOP) accessed at https://orthos.dhses.ny.gov/

3. Existing Conditions

3.1 Existing Land Use and Roadway Descriptions

The site is currently zoned LI and is partially developed by a mix of industrial-commercial uses, including Flowerfield Celebrations catering hall. Uses in the vicinity include single-family residential, Stony Brook University, Stony Brook University Medical Center, and the Stony Brook Research and Development Park ("R & D Park") that has the Center of Excellence in Wireless & Information Technology (CEWIT), the Small Business Development Center, and the Advanced Energy Center.

North Country Road/NYS Route 25A on the north side of the property is a New York State Department of Transportation (NYSDOT) arterial with one lane in each direction. The Average Annual Daily Traffic (AADT) volume between Moriches Road and Stony Brook Road is ±17,300 vehicles per day ("vpd"). The speed limit near the site is 45 mph; near Stony Brook Road to the east, the posted limit is 35 mph.

Mills Pond Road on the west side of the property is a north-south Town of Smithtown collector with one lane in each direction and a 30 mph posted speed limit. It generally runs north-south between Route 25A and Moriches Road.

Stony Brook Road is a north-south Town of Brookhaven roadway with one lane in each direction and turn lanes at key intersections. The posted speed limit near the site is 30 mph.

3.2 Existing Pedestrian Conditions

The Institute of Transportation Engineers (ITE) does not have a database for calculating expected pedestrian volumes at specific land uses, so this discussion is qualitative rather than quantitative.

The Gyrodyne property is nearly 75 acres in size, including the catering hall. The predominant land uses on the site and in the immediate area are not the type of land uses that generally attract high numbers of pedestrians. In our experience, land uses that typically generate pedestrian activity include residential uses, schools, local retail in proximity to residential homes, and recreational uses such as parks and walking trails. The land uses on and near this site consist mainly of light industrial, storage, offices, and a catering hall, which in our experience typically draw vehicle traffic, and which do not typically generate significant numbers of pedestrians on a regular basis.

Some local residents reportedly walk to and within the Gyrodyne site and the catering hall area, which would involve internal roadways rather than internal sidewalks/walking trails.

The roads that front the Gyrodyne property (Route 25A, Mills Pond Road) do not have sidewalks. Observed off-site pedestrian activity in the area has been fairly low.

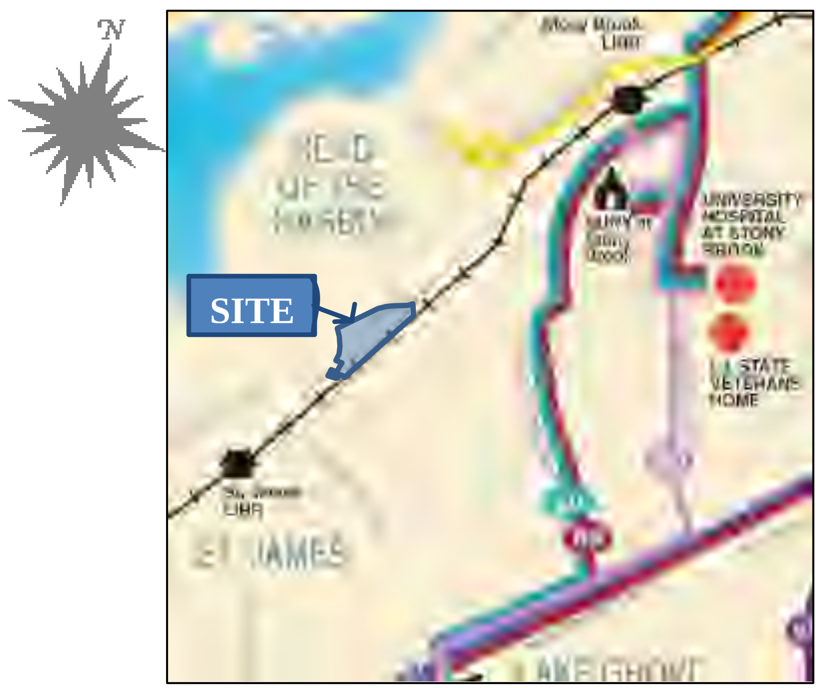
Further away from the site, mainly in the commercial area near the triangle of Lake Avenue, Moriches Road, and Route 25A, there are sidewalks and pedestrian traffic signal features (pushbuttons, walk/don't walk signals, and countdown timers), and there has been more observed pedestrian activity than in the immediate vicinity of the Gyrodyne property.

3.3 Existing Area Transit

Suffolk County Transit (SCT), which runs the local bus system, has no bus routes or stops within ½ mile of the property or its site driveways, according to the SCT system map excerpted in Figure 3-1 below. Gyrodyne will request a transit stop from SCT.

Figure 3-1: Suffolk County Transit map Excerpt

Map Source: Suffolk County Transit System Map accessed at http://www.sct-bus.org/sctmap.html



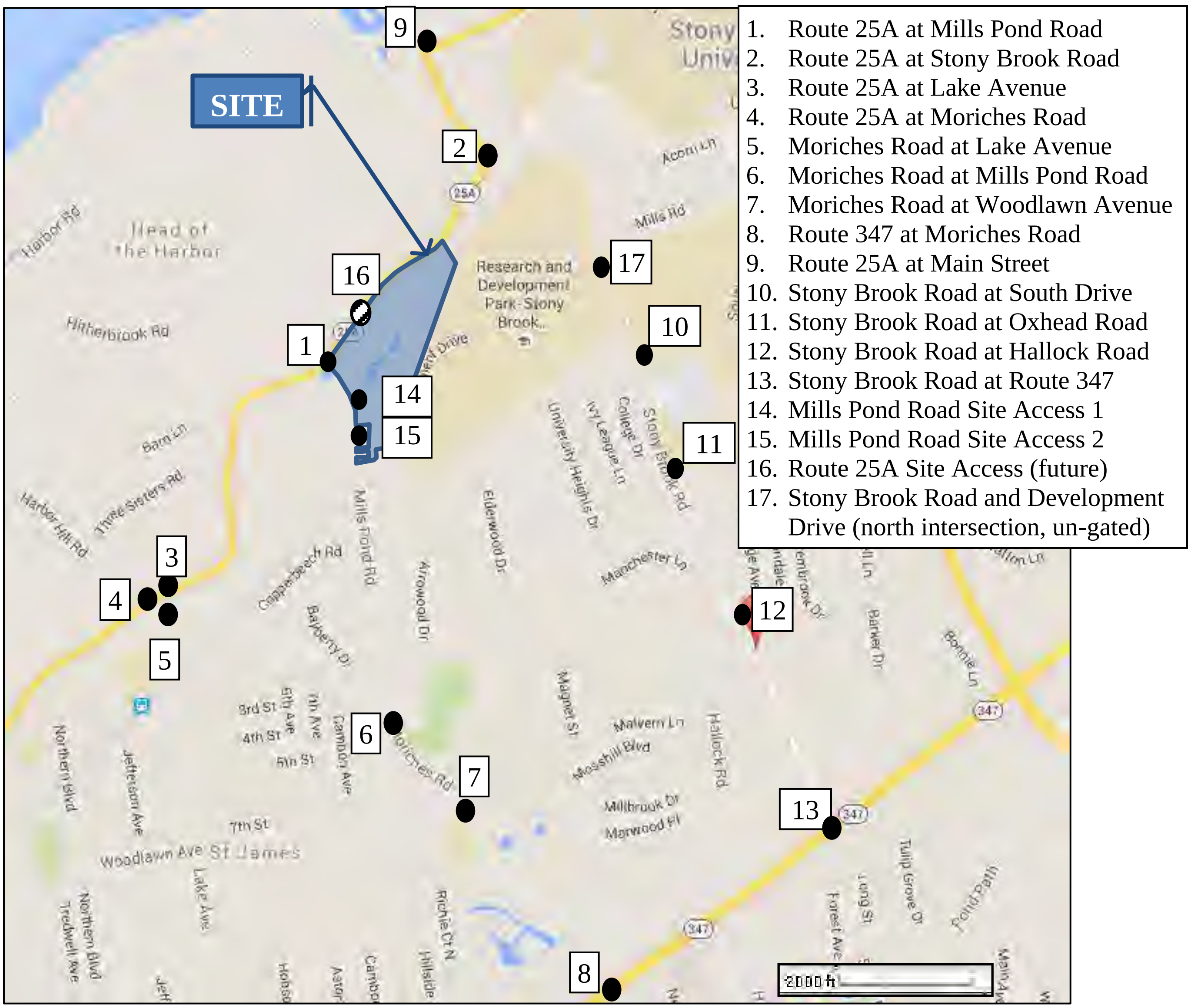
3.4 Key Intersections

Based on site visits to observe prevailing traffic conditions, based on Town of Smithtown input, and based on the Institute of Transportation Engineers (ITE) recommended practice found in *Traffic Impact Analyses for Site Development*, seventeen key intersections were identified, comprising an approximate one-to-two mile offset from the Gyrodyne site boundary. This scope reflects and exceeds the ITE's recommendation (one-mile offset) to examine a logical grid around the site comprised of Route 25A, Moriches Road, Stony Brook Road, and Route 347.

Cameron Engineering does not consider intersections beyond this 1-2 mile area to be meaningful for traffic analysis purposes. For any property, the nearest intersections handle all of the associated traffic, and further away, traffic will filter out of the local street network, leaving smaller percentages of the property's trips at intersections further away from the site.

The intersection list, map, aerial photographs, traffic controls, and lane designations/widths are provided on the following pages.

Figure 3-2: Traffic Study Intersections



Map source: New York Statewide Digital Orthoimagery Program accessed at https://orthos.dhses.ny.gov/

1. NYS Route 25A and Mills Pond Road: stop sign controls Mills Pond Road

- Northbound: 1 left lane (11 feet wide), 1 right turn lane (11 feet wide)
- Eastbound: 1 through-right lane (12 feet wide) with a wide 40' radius right turn
- Westbound: 1 left-through lane (12 feet wide)

2. Route 25A at Stony Brook Road: stop sign controls Stony Brook Road

- Northbound: 1 through lane (11 feet wide), 1 channelized right lane (15 feet wide)
- Southbound: 1 left lane (11 feet wide), 1 through lane (11 feet wide)
- Westbound: 1 through lane (12 feet wide), 1 right lane (13 feet wide)

Figure 3-3: Route 25A at Mills Pond Road

Figure 3-4: 25A at Stony Brook Road

3. Route 25A at Lake Avenue: stop sign control on Lake Avenue (flashing red signal)[1]

- Northbound: 1 through lane (11 feet wide), 1 right lane (11 feet wide) (signed No Left Turn)
- Southbound: 1 Fire Department curb cut for left-through-right maneuvers (>20 feet wide)
- Eastbound: 1 left-through-right lane (11 feet wide)
- Westbound: 1 left lane (11 feet wide), 1 through-right lane (11 feet wide)

4. Route 25A at Moriches Road: 3-phase traffic signal

- Northbound Moriches: 1 left lane (11 feet), 1 through lane (11 feet) (signed No Right Turn)
- Southbound Moriches: 1 left lane (12 feet wide), 1 through-right lane (12 feet wide)
- Eastbound 25A: 1 left-through lane (11 feet wide), 1 right lane (11 feet wide)
- Westbound 25A: 1 through-right lane (12 feet wide) (signed No Left Turn)

[1] All aerial imagery is sourced from New York Statewide Digital Orthoimagery Program accessed at https://orthos.dhses.ny.gov/

5. Moriches Road at Lake Avenue: 3-phase traffic signal

- Northbound: 1 left lane (11 feet wide), 1 through-right lane (11 feet wide)
- Southbound: 1 left lane (11 feet wide), 1 through-right lane (11 feet wide)
- Eastbound: 1 left-through lane (11 feet wide), 1 channelized right lane (12 feet wide)
- Westbound: 1 left-through-right lane (13 feet wide)

Figure 3-5: 25A at Moriches Road and at Lake Avenue; Lake Avenue at Moriches Road

6. Moriches Road at Mills Pond Road-Evon Lane: Stop sign on Mills Pond Road-Evon Lane

- Northbound: 1 left-through-right lane (14 feet wide)
- Southbound: 1 left-through-right lane (12 feet wide)
- Eastbound: 1 left-through-right lane (13 feet wide)
- Westbound: 1 left-through lane (11 feet wide), 1 channelized right lane (14 feet wide)

7. Moriches Road at Woodlawn Avenue: 2-phase traffic signal

- Northbound: 1 left lane (10 feet wide), 1 through-right lane (13 feet wide)
- Southbound: 1 left-through-right lane (12 feet wide)
- Eastbound: 1 left lane (10 feet wide), 1 through-right lane (12 feet wide)
- Westbound (gated): 1 left-through-right lane (12 feet wide)

Figure 3-6: Moriches Road at Mills Pond Road

Figure 3-7: Moriches Road at Woodlawn Avenue

8. Route 347 at Moriches Road-Smith Haven Mall: 6-phase traffic signal

- Northbound: 2 left lanes (12 feet), 1 through lane (12 feet), 1 right lane (11 feet wide)
- Southbound: 2 left lanes (10 feet), 1 through lane (11 feet wide), 1 right lane (11 feet wide)
- Eastbound: 1 left lane (10 feet), 3 through lanes (11 feet wide), 1 right lane (12 feet wide)
- Westbound: 2 left lanes (11 feet), 3 through lanes (12 feet), 1 channelized right lane (12 feet)

Figure 3-8: Route 347 at Moriches Road

9. Route 25A at Main Street: 3-phase traffic signal

- Northbound 25A: 1 through lane (11 feet wide), 1 right lane (13 feet wide)
- Southbound Main Street: 1 left lane (11 feet wide), 1 through lane (11 feet wide)
- Westbound 25A: 1 left lane (11 feet wide), 1 channelized right lane (15 feet wide)

Figure 3-9: Route 25A at Main Street

10. Stony Brook Road at South Drive: 2-phase traffic signal

- Northbound: 1 through lane (11 feet wide), 1 right lane (11 feet wide)
- Southbound: 1 left-through lane (11 feet wide)
- Westbound: 1 left lane (12 feet wide), 1 right lane (12 feet wide)

11. Stony Brook Road at Oxhead Road: 2-phase traffic signal

- Northbound: 1 through-right lane (12 feet wide)
- Southbound: 1 left-through lane (12 feet wide)
- Westbound: 1 left-right lane (15 feet wide)

Figure 3-10: Stony Brook Road at South Drive

Figure 3-11: Stony Brook Road at Oxhead Road

12. Stony Brook Road at Hallock Road: 3-phase traffic signal

- Northbound: 1 left lane (10 feet wide), 1 through lane (11 feet wide)

- Southbound: 1 through-right lane (12 feet wide)
- Eastbound: 1 left lane (10 feet wide), 1 right lane (10 feet wide)

Figure 3-12: Stony Brook Road at Hallock Road

13. Route 347 at Stony Brook Road: 4-phase traffic signal

- Northbound: 1 left lane (12 feet), 1 through lane (12 feet wide), 1 right lane (14 feet wide)
- Southbound: 1 left lane (12 feet), 1 through lane (12 feet wide), 1 right lane (12 feet wide)
- Eastbound: 2 left lanes (12 feet), 2 through lanes (12 feet wide), 1 right lane (13 feet wide)
- Westbound: 1 left lane (12 feet), 3 through lanes (11.5 feet wide), 1 right lane (12 feet wide)

Figure 3-13: Stony Brook Road at Route 347

17. Stony Brook Road at Development Drive: Stop sign on Development Drive

- Northbound: 1 lane for left turns or through movements (12 feet)
- Southbound: 1 lane for through movements and right turns (12 feet)
- Eastbound: 1 left turn lane (12 feet) and 1 channelized right turn lane (13 feet wide)

Figure 3-14: Stony Brook Road at Development Drive

3.5 Accident History

Cameron Engineering requested the latest available 3-year accident data (covering July 2014 to June 2017) from NYSDOT for the study intersections and intervening road segments on Route 25A (from Mills Pond Road to Lotowana Lane, past Main Street) and Stony Brook Road (from Route 25A to Glenridge Avenue, just south of Hallock Road). The data were reviewed for specific trends to help identify appropriate off-site traffic improvements associated with the proposed subdivision. Generally, high accident locations are defined as having at least five incidents of any type over a 12-month period. This did not occur so this study focuses on the highest frequency accidents.

Area-wide, 77% of collisions occurred in daylight, 78% occurred when the weather was clear or cloudy, and 72% occurred with dry road conditions. With respect to severity, 28% of accidents were "non-reportable," meaning they had minimal property damage; 41% involved property damage only; and the remaining 31% involved an injury. There were no fatalities, one incident involved a severe injury, and one incident involved a bicyclist who did not suffer a severe injury and whose error was cited as a contributing factor.

Individual locations are described below; Figure 3-15 (page 3-11) maps the "reportable" (measurable property damage or injury) incidents. Overall, the highest accident frequencies occurred at two intersections on Stony Brook Road: at Route 25A and at South Drive.

25A at Mills Pond Road: There were 8 accidents in three years, of which 4 were non-reportable and 4 involved property damage with no injuries. Two collisions involved hitting an animal and two others involved hitting a utility pole. No accident type occurred more than once a year on average to indicate a specific safety concern.

25A between Mills Pond Road and Stony Brook Road: Of 16 accidents, 2 were non-reportable, 3 were at intersections (Shep Jones Lane, Ashleigh Drive), 1 was at an unidentified driveway, and 7 of the remaining 10 were fixed-object incidents (utility pole, deer, or trees). Three of these 7 drivers who hit a fixed object had fallen asleep or had an animal dart into the street.

25A at Stony Brook Road: There were 26 reportable accidents during the three year study period, of which 12 involved an injury (the highest injury frequency of any studied location). The most frequent collision types were right angle (11 over three years) and rear end (8 over three years). This likely relates to the unique, confusing circulation and to the sight distance being physically limited by roadway curvature. As will be discussed in Sections 7 and 8, Cameron Engineering recommends improvements to this intersection, in part to address existing safety conditions.

Route 25A between Stony Brook Road and Main Street: There were three incidents on this segment: one driver hit a parked car, one made a left turn onto Blydenburgh Lane, and another was involved in a rear end collision. These are not high enough frequencies to indicate specific concerns, and this segment will have minimal subdivision traffic.

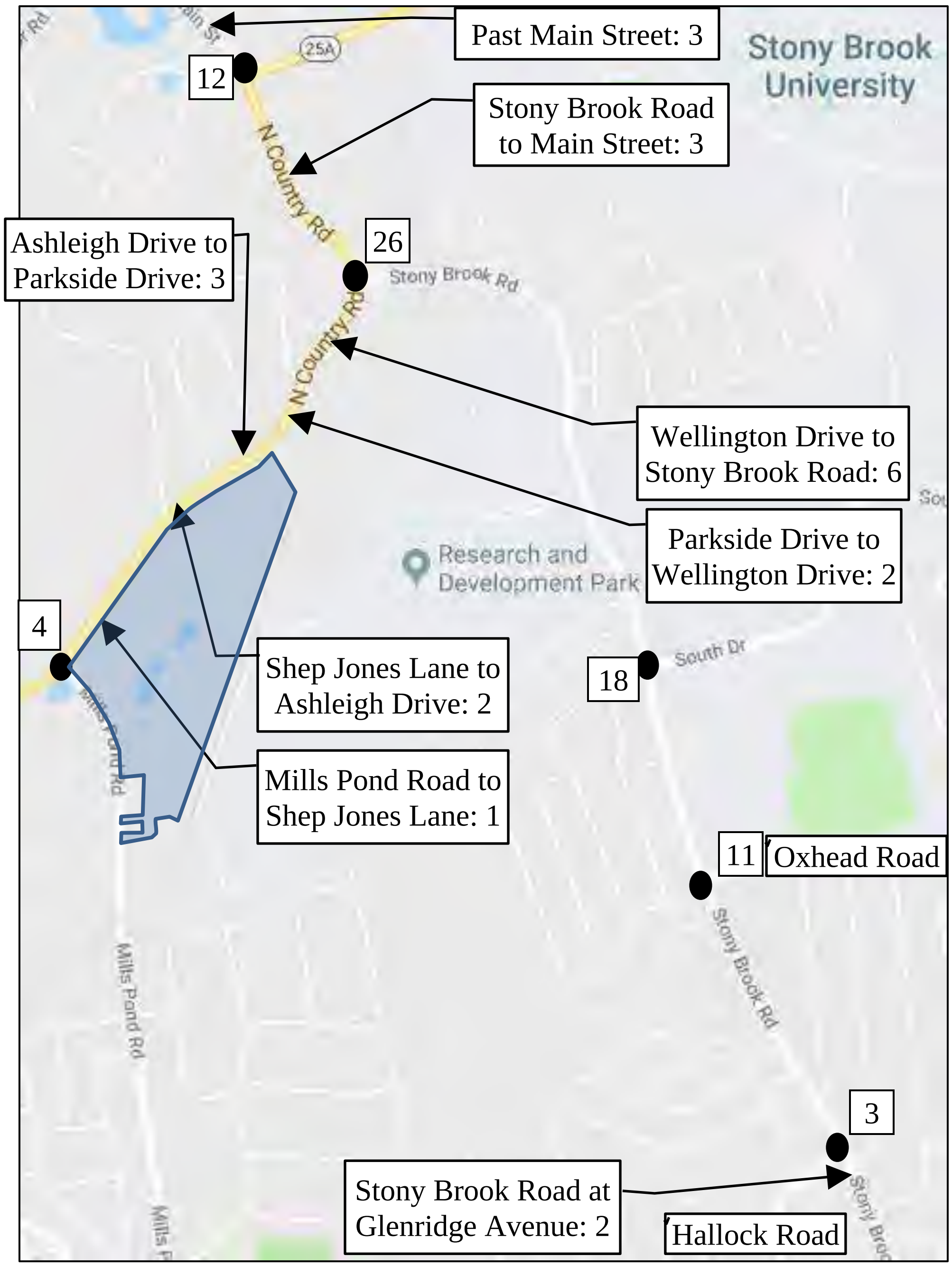
Route 25A at Main Street: There were 12 reportable incidents at this intersection, of which 4 were considered overtaking incidents and 5 were rear end collisions. This location is technically considered two intersections, with 8 incidents at the main intersection and 4 incidents at the right-turn merge onto north-east Main Street. Roughly 75% of the accidents appear to have involved drivers heading north or east, based on the descriptions in the report from NYSDOT. This intersection will not receive significant traffic from the subdivision, and the overall frequencies at each location are generally 1-2 per year, so there is no safety-related improvement proposed for this location.

Main Street past Route 25A: There were three incidents at two separate intersections northeast of Route 25A-Main Street: 2 at Main Street/Saddle Road and 1 at Main Street/Lotowana Lane. These are not high enough frequencies to indicate particular trends or patterns, and this segment will receive a minimal (if any) percentage of traffic associated with the subdivision.

Stony Brook Road at University Heights Drive: There were two incidents over three years, comprising one rear end collision in either direction on Stony Brook Road. This is not a high enough frequency to indicate a specific safety concern.

Stony Brook Road at South Drive: This intersection had 18 reportable accidents, with the highest incidence being rear end collisions (9 of the 18). Half (9) of the accidents also involved an injury. It was here that a cyclist was hit, with cyclist error cited as the contributing factor. Classified by approach, over 60% of the accidents involved a southbound driver; half of the total involved drivers were heading south. Additionally, one accident in six involved left turns. As will be discussed later, this study recommends safety improvements at this intersection, in part to address the existing frequencies of rear end and left turn collisions.

Figure 3-15: Reportable Accident Frequency Map (July 2014 – June 2017)



Stony Brook Road at Oxhead Road: There were 11 reportable incidents, of which 6 were rear end collisions. Most incidents involved vehicles headed north or south. The injury rate was small (roughly 1/3). As will be discussed in Sections 7 and 8, this study recommends improvements to help address the existing rear end accident frequency.

Stony Brook Road at University Heights Drive: This intersection had 1 reportable accident over three years, which does not indicate safety concerns.

Stony Brook Road at Hallock Road: There were three incidents over three years, including two incidents where the driver became ill or fell asleep, and then hit a tree. The data do not show high enough frequencies of any collision type to indicate safety concerns.

Stony Brook Road at Glenridge Avenue: There were two incidents at this intersection (located just south of Hallock Road) in three years, which is not a high enough frequency to indicate a specific safety concern.

Table 3-1 on the next page summarizes the accident study findings.

Collision Summary - North Country Road/Main Street/Stony Brook Road Intersections

NYS 25A at:	***Mills Pond Road***	
Collision Type	Number	%
Non-Reportable	4	
Property Damage	4	100%
Injury	0	0%
Fatal	0	0%
Bicycle	0	0%
Pedestrian	0	0%
Fixed Object	0	0%
Head On	0	0%
Left Turn	0	0%
Overtaking	1	25%
Other	0	0%
Rear End	1	25%
Right Angle	0	0%
Right Turn	0	0%
Sideswipe	2	50%
Unknown	0	0%
Total	**4**	

Between Mills Pond & Stony Brook Road	
Number	%
2	
7	50%
7	50%
0	0%
0	0%
0	0%
7	50%
1	7%
0	0%
1	7%
2	14%
2	14%
0	0%
0	0%
1	7%
0	0%
14	

NYS 25A at:	***Stony Brook Road***		***Main Street***	
Collision Type	Number	%	Number	%
Non-Reportable	8		9	
Property Damage	14	54%	9	75%
Injury	12	46%	3	25%
Fatal	0	0%	0	0%
Bicycle	0	0%	0	0%
Pedestrian	0	0%	0	0%
Fixed Object	3	12%	0	0%
Left Turn	3	12%	0	0%
Overtaking	0	0%	4	33%
Rear End	8	31%	5	42%
Right Angle	11	42%	1	8%
Right Turn	1	4%	1	8%
Unknown	0	0%	1	8%
Total	**26**		**12**	

Route 25A between Stony Brook Road & Main Street			***Route 25A past Main Street***		
Collision Type	Number	%	Collision Type	Number	%
Non-Reportable	1		Non-Reportable	0	
Property Damage	2	67%	Property Damage	2	67%
Injury	1	33%	Injury	1	33%
Fatal	0	0%	Fatal	0	0%
Bicycle	0	0%	Bicycle	0	0%
Pedestrian	0	0%	Pedestrian	0	0%
Fixed Object	1	33%	Fixed Object	2	67%
Head On	0	0%	Head On	0	0%
Left Turn	1	33%	Left Turn	0	0%
Overtaking	0	0%	Overtaking	0	0%
Rear End	1	33%	Rear End	0	0%
Right Angle	0	0%	Right Angle	1	33%
Sideswipe	0	0%	Sideswipe	0	0%
Total	**3**			**3**	

Collision Summary - North Country Road/Main Street/Stony Brook Road Intersections

Stony Brook Road at:	***South Drive***		***Oxhead Road***		***Hallock Road***	
Collision Type	Number	%	Number	%	Number	%
Non-Reportable	9		3		0	
Property Damage	9	50%	7	64%	0	0%
Injury	9	50%	4	36%	3	100%
Fatal	0	0%	0	0%	0	0%
Bicycle	1	6%	0	0%	0	0%
Pedestrian	0	0%	0	0%	0	0%
Fixed Object	0	0%	1	9%	2	67%
Head On	0	0%	0	0%	0	0%
Left Turn	3	17%	2	18%	0	0%
Overtaking	2	11%	0	0%	0	0%
Other	0	0%	0	0%	0	0%
Ran off road	1	6%	0	0%	0	0%
Rear End	9	50%	6	55%	0	0%
Right Angle	1	6%	1	9%	1	33%
Right Turn	1	6%	0	0%	0	0%
Sideswipe	0	0%	0	0%	0	0%
Unknown	0	0%	1	9%	0	0%
Total	**18**		**11**		**3**	

Stony Brook Road at:	***University Heights Drive***			***Glenridge Avenue***	
Collision Type	Number	%	Collision Type	Number	%
Non-Reportable	1		Non-Reportable	0	
Property Damage	0	0%	Property Damage	1	50%
Injury	1	100%	Injury	1	50%
Fatal	0	0%	Fatal	0	0%
Bicycle	0	0%	Bicycle	0	0%
Pedestrian	0	0%	Pedestrian	0	0%
Fixed Object	0	0%	Fixed Object	0	0%
Left Turn	0	0%	Left Turn	0	0%
Rear End	1	100%	Rear End	1	50%
Right Angle	0	0%	Right Angle	1	50%
Right Turn	0	0%	Right Turn	0	0%
Sideswipe	0	0%	Sideswipe	0	0%
Unknown	0	0%	Unknown	0	0%
Total	**1**		**Total**	**2**	

3.6 Traffic Volumes

Traffic volumes were counted at the key intersections on Wednesday, February 8, 2017 (7:00-9:00 am, 4:00-6:00 pm*) and Saturday, February 11, 2017 (11:00 am-2:00 pm). One intersection, Stony Brook Road at Development Drive, was counted on Wednesday, March 28, 2018 (7:00-9:00 am, 4:00-6:00 pm). This latter intersection was not counted or analyzed for Saturday because it is the access to the Stony Brook R & D Park, whose uses are closed on weekends.
** Mills Pond Road at Route 25A and at the two Gyrodyne driveways were counted 7-10 am and 3-6 pm to account for school bus activity at the bus depot, which is no longer here.*

The weekday counts likely represent busier conditions than what would be expected on an average February day, for two reasons: there was record daily warmth during the counts[2], and there was a major snowstorm forecast the following day.[3] In our experience, personal travel spikes before major snowstorms in anticipation of limited travel during the storm. Conditions during the March 2018 count were favorable: sunny/cloudy with temperatures in the upper 40s.

To capture catering hall event traffic, Mills Pond Road at Route 25A and at the two Flowerfield driveways were counted during two larger events held in February 2017:

- Friday, February 10, 2017 from 7:00-8:30 pm and 12:00 midnight-1:30 am for a 150-guest wedding that ran from 8:00 pm until 1:00 am
- Saturday, February 11, 2017 from 6:30-8:00 pm and 12:00 midnight-1:30 am for a 150-person Fire Department dinner that ran from 7:00 pm until 1:00 am

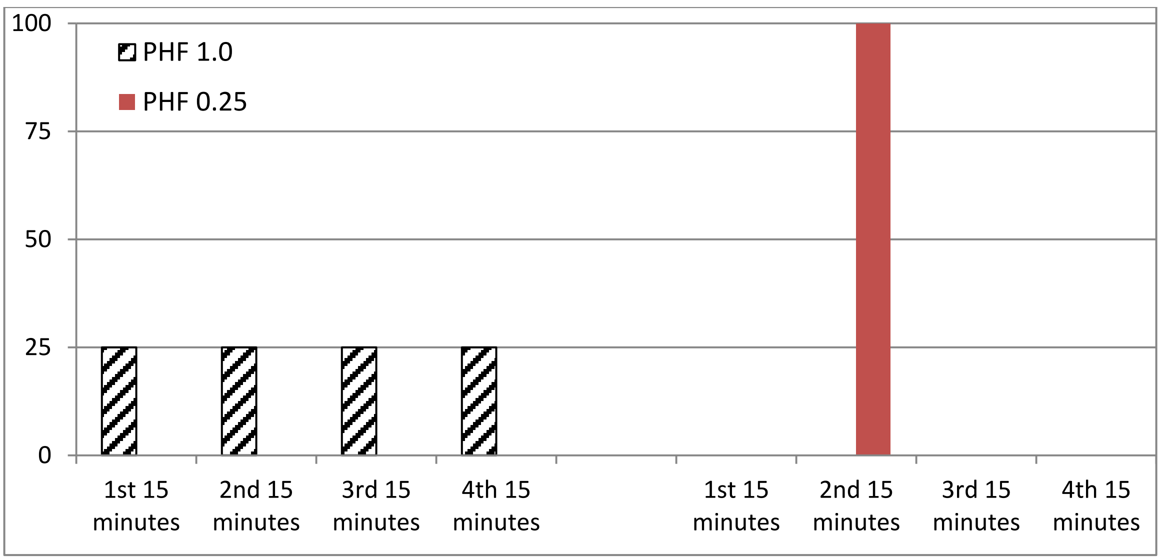
Sections 3.7 and 3.8 describe how, before the volumes could be analyzed, they were adjusted to reflect average-month conditions, considering February is typically less busy than average[4]. As noted above, this adjustment should yield conservative, busier-than-average volumes, because the baseline weekday counts were obtained on a busier-than-average February day. The adjusted volumes, shown in Figure 3-18 to Figure 3-20, were used to determine current levels of service at the key intersections.

[2] The 62° F high temperature on February 8, 2017 was a daily record. 62° F is a typical high temperature in April. Source: Weather Underground records for L.I. MacArthur Airport in Islip, accessed on April 19, 2017: https://www.wunderground.com/history/airport/KISP/2017/2/8/DailyHistory.html?req_city=&req_state=&req_statename=&reqdb.zip=&reqdb.magic=&reqdb.wmo=
[3] The Islip area experienced 14.3 inches of snow on the day after the February 8, 2017 traffic count. Source: Weather Underground records for L.I. MacArthur Airport in Islip, accessed on April 19, 2017: https://www.wunderground.com/history/airport/KISP/2017/2/9/DailyHistory.html?req_city=Smithtown&req_state=NY&req_statename=New+York&reqdb.zip=11787&reqdb.magic=1&reqdb.wmo=99999
[4] Source: NYSDOT Highway Data Services Bureau - Monthly Adjustment Factors for 2016 (the latest available data) accessed April 19, 2017 at https://www.dot.ny.gov/divisions/engineering/technical-services/hds-respository/Tab/NYSDOT_2016_Seasonal_Adjustment_Factors.pdf

3.7 Traffic Analysis: Peak Hour Factors (PHFs)

A "Peak Hour Factor" is a number between 0.25 and 1.00 that represents the consistency of traffic volume during the peak hour. With the most consistent flow (a PHF of 1.0), each 15-minute interval has the same traffic volume. With the least consistent flow (a PHF of 0.25), one 15-minute interval has the entire hour's volume, and there are no vehicles for the remaining 45 minutes. During peak periods, PHFs tend to be close to 1.0 since peak hour traffic flow tends to be consistent[5]. Since the volumes were adjusted for busier conditions (see Section 3.8 on page 3-16), the small number of PHFs below 0.92 were increased to 0.92 to reflect higher traffic volumes.

Figure 3-16: Peak Hour Factor Explanation



Graph Source: Schematic prepared by Cameron Engineering

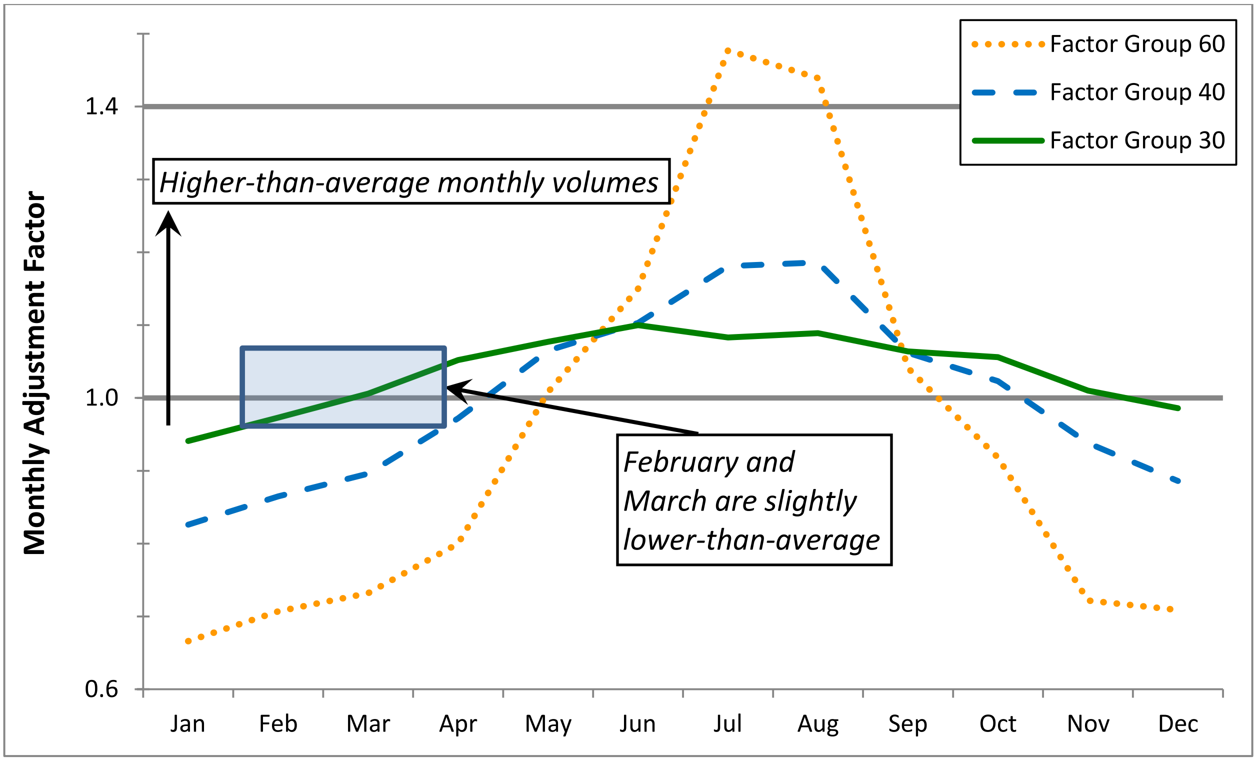
3.8 Seasonal Adjustment

Traffic volumes tend to vary from month to month. The extent of this variation depends on several factors such as road's use (as a commuter route vs. a route to seasonal attractions)[4]. Due to the scheduling of this application, this study's traffic counts were obtained in February, when peak hour traffic tends to be ±8-12% lower than it is during an average month. When this situation arises, it is standard accepted traffic engineering practice in New York to increase off-peak counts by a NYSDOT "monthly adjustment factor," a reasonable substitute for peak season traffic counts. The DOT factors, updated annually, are specific to the month and to weekdays vs. weekends. There are three sets of factors for three relative levels of monthly variation called "Factor Groups". See Figure 3-17.

[5] Source: Traffic engineering principles and Cameron Engineering experience

Figure 3-17: Monthly Traffic Volume Variations

Data Source: NYSDOT Highway Data Services Bureau Monthly Adjustment Factors 2016
Accessed at https://www.dot.ny.gov/divisions/engineering/technical-services/hds-respository/Tab/NYSDOT_2016_Seasonal_Adjustment_Factors.pdf



Based on the NSDOT data, the roads surrounding the Gyrodyne property are classified as Factor Group 30, with the least monthly variation. The study intersections in this report were adjusted as shown in the following table:

Table 3-2: February and Average Monthly Adjustment Factors

Data Source: NYSDOT Highway Data Services Bureau Monthly Adjustment Factors 2016
Accessed at https://www.dot.ny.gov/divisions/engineering/technical-services/hds-respository/Tab/NYSDOT_2016_Seasonal_Adjustment_Factors.pdf

Month	Weekday	Adjustment to Average	Weekend	Adjustment to Average
February	*0.959*	*1.153*	*0.799*	*1.119*
March	*1.010*	*1.032*	Not applicable	
Average	***1.042***	***1.000***	***0.894***	***1.000***

The math is fairly straightforward: counted volumes are multiplied by the average-month factor and divided by the February factor (the ratio of the average and February values). For example, a 500-vehicle weekday PM hourly count would be adjusted as follows:

- February volume (500) x the ratio of 1.042 (average factor) / 0.959 (February factor)
- 500 x $^{1.042}/_{0.959}$ = 500 x 1.087 (the weekday "adjustment to average" value in Table 3-2)

- 500 x 1.087 = 544 vehicles

A 500-vehicle weekend February-to-average volume adjustment would use 1.119, the appropriate Weekend Factor, to calculate 560 vehicles.

The adjusted volumes, shown in Figure 3-18 to Figure 3-20, were used to determine the baseline levels of service.

3.9 Existing Levels of Service

An intersection's Level of Service (LOS) describes its quality of traffic flow, and ranges in grade from LOS "A" (relatively congestion-free) to LOS "F" (congested). LOS grades are based on average delay, measured in "seconds per vehicle", and the threshold delays for each grade depend on whether the intersection is controlled by a signal or a stop sign. Detailed LOS descriptions are provided in Appendix A. Existing LOS analyses were performed using Synchro 10, a software package that adheres to the guidelines in the *Highway Capacity Manual 6*.

The existing levels of service are summarized in Table 3-3, and the analysis worksheets are provided in Appendix B. The study intersections range from LOS A to E during the existing peak periods.

Existing Level of Service Summary

Intersection	Movement	AM Peak Hour Delay (sec/veh)	AM v/c Ratio	AM LOS	PM Peak Hour Delay (sec/veh)	PM v/c Ratio	PM LOS	Saturday Peak Hour Delay (sec/veh)	Sat v/c Ratio	Sat LOS
NYS Route 25A and Mills Pond Road	Northbound Left	75.9	0.20	F	613.4	1.58	F	45.9	0.25	E
	Right	21.9	0.30	C	46.1	0.66	E	14.9	0.21	B
	Westbound Left	10.6	0.06	B	12.5	0.18	B	9.6	0.14	A
	INTERSECTION	*1.6*		*A*	*13.7*		*B*	*2.7*		*A*
NYS Route 25A at Stony Brook Road	Stony Brook Rd Left	140.2	1.00	F	112.6	1.03	F	13.5	0.29	B
	Stony Brook Rd Right	15.1	0.23	C	32.1	0.59	D	15.9	0.37	C
	South/West 25A Left	9.4	0.11	A	11.5	0.22	B	39.5	0.57	E
	INTERSECTION	*11.7*		*B*	*13.2*		*B*	*4.1*		*A*
NYS Route 25A at Lake Avenue	Northbound Thr.	0.0	0.00	A	0.0	0.00	A	25.2	0.01	D
	Right	17.9	0.42	C	49.3	0.85	E	14.5	0.38	B
	Westbound Left	11.1	0.25	B	14.1	0.38	B	9.7	0.20	A
	INTERSECTION	*2.7*		*A*	*7.4*		*A*	*3.3*		*A*
NYS Route 25A at Moriches Road	South Moriches Left	19.5	0.14	B	26.5	0.29	C	10.6	0.06	B
	South Mor Thru-Right	18.5	0.24	B	22.7	0.31	C	9.8	0.25	A
	North Moriches Left	23.6	0.44	C	29.3	0.53	C	12.4	0.36	B
	Through	17.8	0.14	B	22.6	0.29	C	9.7	0.24	A
	North-East 25A LT	14.9	0.81	B	14.0	0.84	B	9.4	0.60	A
	North-East 25A Right	7.5	0.11	A	6.2	0.19	A	6.9	0.22	A
	South-West 25A TR	15.8	0.84	B	11.5	0.77	B	9.5	0.63	A
	INTERSECTION	*16.0*		*B*	*15.0*		*B*	*9.6*		*A*
Lake Avenue at Moriches Road	Eastbound LT	9.3	0.14	A	9.7	0.24	A	9.5	0.20	A
	Right	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
	Westbound LT	9.9	0.26	A	9.7	0.23	A	10.2	0.31	B
	Right	9.0	0.06	A	9.3	0.13	A	9.2	0.11	A
	Northbound Left	7.1	0.15	A	7.7	0.24	A	7.2	0.20	A
	Through-Right	5.9	0.23	A	6.2	0.29	A	6.0	0.23	A
	Southbound Left	6.6	0.02	A	7.2	0.05	A	6.8	0.06	A
	Through	5.9	0.22	A	5.9	0.22	A	5.8	0.20	A
	INTERSECTION	*7.5*		*A*	*7.6*		*A*	*7.7*		*A*
Moriches Road at Mills Pond Road-Evon Lane	Northbound LTR	9.1	0.30	A	16.1	0.63	C	13.1	0.53	B
	Eastbound LTR	8.1	0.02	A	9.6	0.06	A	9.3	0.06	A
	Westbound Left	10.1	0.21	B	14.0	0.41	B	13.1	0.37	B
	Right	7.5	0.02	A	8.4	0.01	A	8.2	0.01	A
	Southbound LTR	8.7	0.17	A	10.8	0.30	B	10.8	0.32	B
	INTERSECTION	*9.2*		*A*	*14.2*		*B*	*12.3*		*B*
Moriches Road at Woodlawn Avenue	Eastbound Left	21.3	0.18	C	22.2	0.31	C	21.3	0.15	C
	Right	16.1	0.49	B	28.9	0.83	C	26.9	0.81	C
	Northbound Left	7.0	0.32	A	10.6	0.58	B	9.8	0.54	A
	Through	4.3	0.22	A	4.8	0.35	A	4.6	0.31	A
	Southbound TR	13.9	0.42	B	17.1	0.72	B	16.6	0.69	B
	INTERSECTION	*10.8*		*B*	*15.9*		*B*	*15.1*		*B*

Existing Level of Service Summary

Intersection	Movement	AM Peak Hour Delay (sec/veh)	AM v/c Ratio	AM LOS	PM Peak Hour Delay (sec/veh)	PM v/c Ratio	PM LOS	Saturday Peak Hour Delay (sec/veh)	Sat v/c Ratio	Sat LOS
Moriches Road at Route 347	Eastbound Left	56.7	0.77	E	59.2	0.83	E	60.1	0.87	E
	Through	10.6	0.46	B	21.4	0.71	C	25.7	0.72	C
	Right	1.9	0.02	A	6.3	0.14	A	9.8	0.32	A
	Westbound Left	55.7	0.46	E	48.9	0.68	D	47.2	0.82	D
	Through	17.2	0.76	B	24.5	0.77	C	27.1	0.75	C
	Right	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
	Northbound Left	43.1	0.01	D	47.8	0.50	D	46.3	0.66	D
	Through	47.4	0.30	D	49.7	0.77	D	42.3	0.66	D
	Right	44.4	0.10	D	37.1	0.39	D	29.7	0.41	C
	Southbound Left	46.9	0.75	D	47.5	0.79	D	43.8	0.78	D
	Through	50.9	0.57	D	48.3	0.81	D	53.3	0.85	D
	Right	21.9	0.38	C	14.7	0.32	B	10.6	0.29	B
	INTERSECTION	*18.5*		*B*	*29.0*		*C*	*32.5*		*C*
Route 25A at Main Street	Westbound Left	28.5	0.90	C	45.7	0.96	D	20.5	0.82	C
	Right	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
	Northbound Thru	21.6	0.35	C	27.6	0.57	C	17.6	0.50	B
	Right	6.4	0.55	A	8.5	0.70	A	7.3	0.51	A
	Southbound Left	17.2	0.22	B	21.2	0.39	C	12.8	0.27	B
	Through	15.6	0.36	B	17.5	0.29	B	10.3	0.32	B
	INTERSECTION	*17.8*		*B*	*25.1*		*C*	*13.7*		*B*
Stony Brook Road at South Drive	Westbound Left	17.2	0.17	B	36.0	0.92	D	10.8	0.26	B
	Right	17.5	0.21	B	16.2	0.37	B	10.0	0.09	A
	Northbound Thru	8.6	0.31	A	14.2	0.28	B	10.7	0.33	B
	Right	26.3	0.90	C	16.6	0.51	B	10.5	0.30	B
	Southbound LT (L)	176.9	1.31	F	37.3	0.89	D	11.9	0.50	B
	INTERSECTION	*66.7*		*E*	*28.3*		*C*	*11.1*		*B*
Stony Brook Road at Oxhead Road	Westbound LR	23.6	0.70	C	54.9	0.85	D	16.3	0.49	B
	Northbound TR	11.4	0.84	B	5.0	0.48	A	6.7	0.45	A
	Southbound LT (L)	10.8	0.65	B	61.6	1.06	F	7.4	0.54	A
	INTERSECTION	*13.2*		*B*	*42.1*		*D*	*8.6*		*A*
Stony Brook Road at Hallock Road	Eastbound Left	16.3	0.38	B	29.1	0.66	C	15.1	0.38	B
	Right	14.7	0.05	B	22.2	0.16	C	13.8	0.11	B
	Northbound Left	7.2	0.02	A	21.8	0.20	C	9.9	0.06	A
	Through	9.4	0.77	A	5.5	0.39	A	6.6	0.35	A
	Southbound TR	6.0	0.33	A	13.3	0.87	B	7.6	0.53	A
	INTERSECTION	*9.2*		*A*	*13.2*		*B*	*8.5*		*A*
Stony Brook Road at Route 347	Eastbound Left	66.1	0.85	E	75.7	0.87	E	66.0	0.86	E
	Through	46.6	0.91	D	72.3	1.06	F	47.3	0.99	D
	Right	15.6	0.05	B	8.7	0.11	A	4.6	0.15	A
	Westbound Left	56.8	0.31	E	80.9	0.84	F	71.0	0.81	E
	Through	69.5	1.04	F	35.1	0.86	D	41.2	0.95	D
	Right	25.4	0.17	C	20.8	0.17	C	20.0	0.17	B
	Northbound Left	49.9	0.21	D	58.2	0.43	E	111.5	1.04	F
	Through	60.6	0.63	E	68.1	0.67	E	50.0	0.38	D
	Right	30.7	0.51	C	45.1	0.50	D	89.7	1.02	F
	Southbound Left	48.6	0.61	D	107.6	0.99	F	52.6	0.43	D
	Through	47.8	0.19	D	63.3	0.66	E	63.0	0.70	E
	Right	51.7	0.40	D	98.8	0.93	F	62.0	0.56	E
	INTERSECTION	*58.6*		*E*	*58.5*		*E*	*50.9*		*D*

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Seasonally Adjusted Existing AM Peak Hour Volumes

Figure No. 3-18

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Seasonally Adjusted Existing PM Peak Hour Volumes

Figure No. 3-19

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Seasonally Adjusted Existing Saturday Peak Hour Volumes

Figure No. 3-20

4. Future Conditions Without the Project – The No Build Scenario

Traffic conditions near the site will change even if the property is not subdivided. The future "No Build" condition comes about from the following types of changes:

- **Ambient growth** from general population increases and minor development in the area.
- **Full Occupancy and near-peak use** of the existing industrial and catering uses on the site.
- **Other planned developments** close to the site which have the potential to affect traffic patterns at the study intersections in this report.

4.1 Ambient Growth

According to the NYSDOT, the annual ambient growth rate in this part of Suffolk County is 1.1% per year. The factor was applied to the seasonally adjusted traffic volumes for three years to project the "Existing/adjusted to Average 2017 month" traffic volumes to the year 2020. These volumes comprise the "Ambient No Build" scenario.

4.2 Full Industrial Occupancy of Existing Buildings

The existing industrial buildings on the site were approximately 76% leased and occupied (roughly 41,900 vacant square feet of space) at the time of the traffic counts. The No Build scenario considers these buildings fully occupied, with new tenants comprising a roughly 50-50 split between office and light industrial uses. This is conservative because the proposed subdivision could add new office space that future tenants would likely opt to occupy, leaving more room in the existing buildings for industrial tenants. As of 2018, Stony Brook University plans to add 85-90 office staff and 3-7 pediatrics staff at its existing space at Gyrodyne, added to roughly 155 existing personnel (3-15 of whom are only occasionally at these buildings). This would occur within the available vacant spaces.

Table 4-1: Anticipated Full Industrial Occupancy

Occupancy during Existing Traffic Counts: 110,080 s.f.	
New Light Industrial	20,956 s.f.
New Office/Medical Office	20,955 s.f.
Total New Occupancy	151,991 s.f.
Total Building Occupancy	151,980 s.f.

4.3 Near-Peak Catering Hall Event

The No Build scenario considers the Flowerfield catering hall hosting a Saturday midday event with 175 guests, a number that exceeds the guest counts from 90% of the weekend midday events over the last five years. This is called the "90th percentile" guest count and is the appropriate value for the purposes of a traffic study. Flowerfield provided Cameron Engineering with records from nearly 200 events dating back to January 1, 2012 that were held on weekends and which started at or before 3:00 pm. The catering hall is not typically hosting peak-guest-count events during AM or PM peak hours that end by 6:00 p.m.

During the traffic counts obtained for this study, the catering hall hosted events with up to 150 guests. The traffic associated with a near-peak event was calculated by a simple multiplier of $^{175}/_{150}$ (1.17); the difference was added to the baseline Saturday midday traffic volumes counted entering and exiting the property.

4.4 Other Planned Developments

The term "other planned developments" refers to projects that are planned in the general surrounding area and are currently under review by the Town of Smithtown. These projects have the potential to generate traffic through one or more of the key intersections by 2020, but that traffic would not have been included in the field counts.

There are two planned new research and development (R&D) uses that will soon be underway in the Stony Brook University Research and Development Park:

- The Innovation and Discovery Center (IDC)
- The Institute for Discovery and Innovation in Medicine and Engineering (I-DIME), which is not planned for completion until the summer of 2021

The IDC will be a 200,000 s.f. "mezzanine structure…to promote the growth of startup businesses and allow Stony Brook incubator companies to step up to the next level." Based on its description, some of the IDC activity will come from persons already at the University, likely with similar operating hours as the Small Business Development Center (given its similar economic development purpose): Monday-Friday, 8:00 a.m. to 4:30 p.m.

The I-DIME will be 70,000 s.f. for "advanced data analytics with pioneering research." Its hours may match the Monday-Friday 9:00 a.m.-5:00 p.m. hours at CEWIT and the Advanced Energy Center (which have a similar research purpose). Since I-DIME is not expected to open until 2021, it is not included in the Year 2020 Build volumes.

Towne Bus moved out of the Gyrodyne site after the traffic counts were collected. Towne Bus utilized the property as a bus depot and used to have over 120 private vehicles and at least 45 school buses when it was active. There should be a notable reduction in school bus traffic immediately near the site, but to be conservative, no reduction was made.

Lastly, in 2018, Northwind purchased the International Baptist Church property on the south side of Route 25A, just east of Gyrodyne, for a possible independent senior living development called Stony Brook Meadows. The sale is very recent and there is no known application to the Town of Brookhaven, so its traffic is not included in this study.

Therefore, for the purposes of this traffic study, the other planned projects reflected in the analysis comprise the R & D Park expansion and full occupancy at Gyrodyne, whose traffic was added to the "Ambient No Build" projections to get the "Total No Build" traffic volumes, which are illustrated in Table 4-2 and Figures 4-1 through 4-3 on the next pages.

Table 4-2: Other Project Trip Generation

Land Use	AM Peak Hour	PM Peak Hour	Saturday Peak Hour
Larger catering event	Enter: 0 tph* Exit: 0 tph Total: 0 tph	Enter: 0 tph Exit: 0 tph Total: 0 tph	Enter: 16 tph Exit: 27 tph Total: 44 tph
Full occupancy At Gyrodyne	Enter: 40 tph Exit: 8 tph Total: 48 tph	Enter: 10 tph Exit: 38 tph Total: 49 tph	Enter: 7 tph Exit: 6 tph Total: 13 tph
R&D Park IDC building	Enter: 63 tph Exit: 21 tph Total: 84 tph	Enter: 10 tph Exit: 58 tph Total: 68 tph	Enter: 0 tph Exit: 0 tph Total: 0 tph
Total "other project" trips	Enter: 103 tph Exit: 29 tph Total: 132 tph	Enter: 20 tph Exit: 96 tph Total: 116 tph	Enter: 23 tph Exit: 33 tph Total: 56 tph

* tph = trips per hour (trips may not add directly due to rounding)

Trip Distribution & Assignment:
Other Planned Projects

		Larger Event at Flowerfield				Occupy Vacant Existing Lot 1 Space				IDC - 200,000 square feet of R & D space		
		AM	PM	SAT		AM	PM	SAT		AM	PM	SAT
Passby Factors:	Enter	**0**	**0**	**16**	Enter	**40**	**10**	**7**	Enter	**63**	**10**	**0**
Weekday: 0%	Exit	**0**	**0**	**27**	Exit	**8**	**38**	**6**	Exit	**21**	**58**	**0**
Weekend: 0%	Total	0	0	44	Total	48	49	13	Total	84	68	0

		Traffic Distribution		OTHER PROJECT 1 Generated Volume			Traffic Distribution		OTHER PROJECT 2 Generated Volume			Traffic Distribution		OTHER PROJECT 3 Generated Volume			Total "Other Project" Trips		
Dir	Movemt	Enter	Exit	AM	PM	SAT	Enter	Exit	AM	PM	SAT	Enter	Exit	AM	PM	SAT	AM	PM	SAT
Mills Pond Road and NYS Route 25A																			
NB	Left		25%	0	0	7		25%	2	10	1			---	---	---	2	10	8
	Right		41%	0	0	11		41%	3	16	2			---	---	---	3	16	14
EB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through			---	---	---			---	---	---	13%		8	1	0	8	1	0
	Right	25%		0	0	4	25%		10	3	2			---	---	---	10	3	6
WB	Left	41%		0	0	7	41%		16	4	3			---	---	---	16	4	10
	Through			---	---	---			---	---	---		13%	3	8	0	3	8	0
	Right			---	---	---			---	---	---			---	---	---	0	0	0
Stony Brook Road and NYS Route 25A																			
NB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through		5%	0	0	1		5%	0	2	0			---	---	---	0	2	2
	Right		36%	0	0	10		36%	3	14	2	13%		8	1	0	11	15	12
SB	Left			---	---	---			---	---	---	10%		6	1	0	6	1	0
	Through	5%		0	0	1	5%		2	1	0			---	---	---	2	1	1
	Right			---	---	---			---	---	---			---	---	---	0	0	0
WB	Left	36%		0	0	6	36%		14	4	3		13%	3	8	0	17	11	9
	Through			---	---	---			---	---	---			---	---	---	0	0	0
	Right			---	---	---			---	---	---		10%	2	6	0	2	6	0
Lake Avenue and NYS Route 25A																			
NB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through			---	---	---			---	---	---			---	---	---	0	0	0
	Right	5%		0	0	1	5%		2	1	0			---	---	---	2	1	1
SB	Left			---	---	---			---	---	---	3%		2	0	0	2	0	0
	Through			---	---	---			---	---	---			---	---	---	0	0	0
	Right			---	---	---			---	---	---			---	---	---	0	0	0
EB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through	20%		0	0	3	20%		8	2	1	10%		6	1	0	14	3	5
	Right			---	---	---			---	---	---			---	---	---	0	0	0
WB	Left		5%	0	0	1		5%	0	2	0			---	---	---	0	2	2
	Through		20%	0	0	5		20%	2	8	1		10%	2	6	0	4	13	7
	Right			---	---	---			---	---	---		3%	1	2	0	1	2	0
Moriches Road and NYS Route 25A																			
EB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through	20%		0	0	3	20%		8	2	1			---	---	---	8	2	5
	Right			---	---	---			---	---	---			---	---	---	0	0	0
WB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through		20%	0	0	5		20%	2	8	1			---	---	---	2	8	7
	Right			---	---	---			---	---	---			---	---	---	0	0	0
Lake Avenue and Moriches Road																			
NB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through	5%		0	0	1	5%		2	1	0			---	---	---	2	1	1
	Right			---	---	---			---	---	---			---	---	---	0	0	0
SB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through		5%	0	0	1		5%	0	2	0			---	---	---	0	2	2
	Right			---	---	---			---	---	---			---	---	---	0	0	0
Moriches Road and Mills Pond Road-Evon Lane																			
NB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through			---	---	---			---	---	---			---	---	---	0	0	0
	Right	34%		0	0	6	34%		14	4	3			---	---	---	14	4	8
WB	Left		34%	0	0	9		34%	3	13	2			---	---	---	3	13	11
	Through			---	---	---			---	---	---			---	---	---	0	0	0
	Right			---	---	---			---	---	---			---	---	---	0	0	0

Trip Distribution & Assignment:
Other Planned Projects

			Larger Event at Flowerfield				Occupy Vacant Existing Lot 1 Space				IDC - 200,000 square feet of R & D space		
			AM	PM	SAT		AM	PM	SAT		AM	PM	SAT
Passby Factors:		Enter	**0**	**0**	**16**	Enter	**40**	**10**	**7**	Enter	**63**	**10**	**0**
Weekday:	0%	Exit	**0**	**0**	**27**	Exit	**8**	**38**	**6**	Exit	**21**	**58**	**0**
Weekend:	0%	Total	0	0	44	Total	48	49	13	Total	84	68	0

Dir	Movemt	Traffic Distribution Enter	Traffic Distribution Exit	OTHER PROJECT 1 Generated Volume AM	PM	SAT	Traffic Distribution Enter	Traffic Distribution Exit	OTHER PROJECT 2 Generated Volume AM	PM	SAT	Traffic Distribution Enter	Traffic Distribution Exit	OTHER PROJECT 3 Generated Volume AM	PM	SAT	Total "Other Project" Trips AM	PM	SAT
Moriches Road and Woodlawn Avenue																			
NB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through	34%		0	0	6	34%		14	4	3			---	---	---	14	4	8
	Right			---	---	---			---	---	---			---	---	---	0	0	0
SB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through		34%	0	0	9		34%	3	13	2			---	---	---	3	13	11
	Right			---	---	---			---	---	---			---	---	---	0	0	0
Moriches Road and NYS Route 347																			
NB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through	4%		0	0	1	4%		2	0	0			---	---	---	2	0	1
	Right			---	---	---			---	---	---			---	---	---	0	0	0
SB	Left		15%	0	0	4		15%	1	6	1			---	---	---	1	6	5
	Through		4%	0	0	1		4%	0	2	0			---	---	---	0	2	1
	Right		15%	0	0	4		15%	1	6	1			---	---	---	1	6	5
EB	Left	15%		0	0	2	15%		6	2	1			---	---	---	6	2	4
	Through			---	---	---			---	---	---	40%		25	4	0	25	4	0
	Right			---	---	---			---	---	---			---	---	---	0	0	0
WB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through			---	---	---			---	---	---		40%	8	23	0	8	23	0
	Right	15%		0	0	2	15%		6	2	1			---	---	---	6	2	4
Main Street and NYS Route 25A																			
NB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through			---	---	---			---	---	---		5%	1	3	0	1	3	0
	Right		5%	0	0	1		5%	0	2	0		5%	1	3	0	1	5	2
SB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through			---	---	---			---	---	---	5%		3	1	0	3	1	0
	Right			---	---	---			---	---	---			---	---	---	0	0	0
WB	Left	5%		0	0	1	5%		2	1	0	5%		3	1	0	5	1	1
	Through			---	---	---			---	---	---			---	---	---	0	0	0
	Right			---	---	---			---	---	---			---	---	---	0	0	0
Stony Brook Road and South Drive																			
NB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through	36%		0	0	6	36%		14	4	3	65%		41	7	0	55	10	9
	Right			---	---	---			---	---	---			---	---	---	0	0	0
SB	Left			---	---	---			---	---	---		12%	3	7	0	3	7	0
	Through		36%	0	0	10		36%	3	14	2		65%	14	38	0	16	51	12
	Right			---	---	---			---	---	---			---	---	---	0	0	0
WB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through			---	---	---			---	---	---			---	---	---	0	0	0
	Right			---	---	---			---	---	---	12%		8	1	0	8	1	0
Stony Brook Road and Oxhead Road																			
NB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through	15%		0	0	2	15%		6	2	1	45%		28	5	0	34	6	4
	Right			---	---	---			---	---	---			---	---	---	0	0	0
SB	Left		21%	0	0	6		21%	2	8	1		20%	4	12	0	6	20	7
	Through		15%	0	0	4		15%	1	6	1		45%	9	26	0	11	32	5
	Right			---	---	---			---	---	---			---	---	---	0	0	0
WB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through			---	---	---			---	---	---			---	---	---	0	0	0
	Right	21%		0	0	3	21%		8	2	2	20%		13	2	0	21	4	5

Trip Distribution & Assignment:
Other Planned Projects

			Larger Event at Flowerfield				Occupy Vacant Existing Lot 1 Space				IDC - 200,000 square feet of R & D space		
			AM	PM	SAT		AM	PM	SAT		AM	PM	SAT
Passby Factors:		Enter	**0**	**0**	**16**	Enter	**40**	**10**	**7**	Enter	**63**	**10**	**0**
Weekday:	0%	Exit	**0**	**0**	**27**	Exit	**8**	**38**	**6**	Exit	**21**	**58**	**0**
Weekend:	0%	Total	0	0	44	Total	48	49	13	Total	84	68	0

		Traffic Distribution		OTHER PROJECT 1 Generated Volume			Traffic Distribution		OTHER PROJECT 2 Generated Volume			Traffic Distribution		OTHER PROJECT 3 Generated Volume			Total "Other Project" Trips		
Dir	Movemt	Enter	Exit	AM	PM	SAT	Enter	Exit	AM	PM	SAT	Enter	Exit	AM	PM	SAT	AM	PM	SAT
Stony Brook Road and Hallock Road																			
NB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through	15%		0	0	2	15%		6	2	1	45%		28	5	0	34	6	4
	Right			---	---	---			---	---	---			---	---	---	0	0	0
SB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through		15%	0	0	4		15%	1	6	1		45%	9	26	0	11	32	5
	Right			---	---	---			---	---	---			---	---	---	0	0	0
Stony Brook Road and NYS Route 347																			
NB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through	5%		0	0	1	5%		2	1	0	5%		3	1	0	5	1	1
	Right			---	---	---			---	---	---			---	---	---	0	0	0
SB	Left		10%	0	0	3		10%	1	4	1			---	---	---	1	4	3
	Through		5%	0	0	1		5%	0	2	0		5%	1	3	0	1	5	2
	Right			---	---	---			---	---	---		40%	8	23	0	8	23	0
EB	Left			---	---	---			---	---	---	40%		25	4	0	25	4	0
	Through		15%	0	0	4		15%	1	6	1			---	---	---	1	6	5
	Right			---	---	---			---	---	---			---	---	---	0	0	0
WB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through	15%		0	0	2	15%		6	2	1			---	---	---	6	2	4
	Right	10%		0	0	2	10%		4	1	1			---	---	---	4	1	2
Mills Pond Road and Site Access 1																			
NB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through			---	---	---		66%	5	25	4			---	---	---	5	25	4
	Right	26%		0	0	4			---	---	---			---	---	---	0	0	4
SB	Left	51%		0	0	8			---	---	---			---	---	---	0	0	8
	Through	15%		0	0	3	66%		26	7	5			---	---	---	26	7	7
	Right			---	---	---			---	---	---			---	---	---	0	0	0
WB	Left		29%	0	0	8			---	---	---			---	---	---	0	0	8
	Right		66%	0	0	18			---	---	---			---	---	---	0	0	18
Mills Pond Road and Site Access 2																			
NB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Through	26%		0	0	4			---	---	---			---	---	---	0	0	4
	Right	8%		0	0	1	34%		14	4	3			---	---	---	14	4	4
SB	Left	15%		0	0	3	66%		26	7	5			---	---	---	26	7	7
	Through		29%	0	0	8			---	---	---			---	---	---	0	0	8
	Right			---	---	---			---	---	---			---	---	---	0	0	0
WB	Left		5%	0	0	1		34%	3	13	2			---	---	---	3	13	3
	Right			---	---	---		66%	5	25	4			---	---	---	5	25	4
Site Access and NYS Route 25A																			
NB	Left			---	---	---			---	---	---			---	---	---	0	0	0
	Right			---	---	---			---	---	---			---	---	---	0	0	0
EB	Through		41%	0	0	11		41%	3	16	2	13%		8	1	0	11	17	14
	Right			---	---	---			---	---	---			---	---	---	0	0	0
WB	Through	41%		0	0	7	41%		16	4	3		13%	3	8	0	19	12	10
Stony Brook Road and Development Drive (R&D Park)																			
NB	Left			---	---	---			---	---	---	77%		49	8	0	49	8	0
	Thr	15%		0	0	2	15%		6	2	1			---	---	---	6	2	4
SB	Thr			---	---	---			---	---	---			---	---	---	0	0	0
	Right		15%	0	0	4		15%	1	6	1	23%		14	2	0	16	8	5
EB	Left			---	---	---			---	---	---		23%	5	13	0	5	13	0
	Right			---	---	---			---	---	---		77%	16	45	0	16	45	0

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AM Peak Hour No Build Volumes

Figure No. 4-1

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PM Peak Hour No Build Volumes
Figure No. 4-2

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Saturday Peak Hour No Build Volumes

Figure No. 4-3

5. Signal Warrant Study: Route 25A at Mills Pond Road

In earlier Cameron Engineering traffic studies at Gyrodyne, it was proposed to install a traffic signal at the intersection of Route 25A-Mills Pond Road based on a "traffic signal warrant study." The study results were submitted to NYSDOT to request a new signal, which the Department approved in September 2007 via an issued letter – see Appendix I..

Given the passage of time and the changed potential yield, Cameron Engineering conducted a new signal warrant study to determine if existing and projected conditions still justify signalizing the intersection. This study is based on the procedures in the National *Manual on Uniform Traffic Control Devices (MUTCD)*, which compare traffic volumes, 85^{th} percentile speeds, and physical characteristics to criteria known as "warrants". Meeting one warrant is a minimum requirement to justify a traffic signal installation.

Of nine possible warrants, only two could genuinely apply to this intersection:

- Warrant 1 (8-Hour Vehicular Volume)
- Warrant 2 (Four-Hour Vehicular Volume)

This traffic study analyzes six typical weekday hours for the AM and PM peak periods; Friday evening counts reflect catering hall events and should not be utilized for signal warrant review. This analysis considers Warrant 2 only (Four-Hour Vehicular Volume). While it is likely that weekday midday traffic is sufficiently high enough to also satisfy Warrant 1 (Eight-Hour Vehicular Volume), as shown below, the four-hour volumes are high enough to justify the installation of a traffic signal. Since this confirms a previous analysis, no further warrants were examined at this intersection.

The remaining warrants are known to not apply for the listed reasons below.

- Warrant 3 (Peak Hour Volume/Delay)
  - *There is no subdivision component that creates undue daily travel delay or that constitutes an "unusual case" as the MUTCD requires to justify using this warrant.*
- Warrant 4 (Pedestrian Volume)
  - *Not enough pedestrians cross Mills Pond Road or Route 25A on a regular basis*
  - *There is no pedestrian-oriented land use in the immediate vicinity*
- Warrant 5 (School Crossing)
  - *The intersection is not an established school crossing*
- Warrant 6 (Coordinated Signal System)
  - *The resulting signal separation would be ±6,000 feet in both directions, whereas the ideal separation between signals is 3,000-5,000 feet in both directions based on the*

potential signal cycle (90-150 seconds) and average speed:

→ *90-second cycle: 0.5 x 90 x (40 mph x 1.67 = 66.8 feet/second) = 3,006 feet*

→ *150-second cycle: 0.5 x 150 x 66.8 feet/second = 5,010 feet*

- Warrant 7 (Crash Experience)
  - *This warrant requires a history of specific collision types (opposing left turns, right-angle, and pedestrian) and sufficient use of non-signal measures with proof that these measures have failed to alleviate these specific collision types. As discussed in Section 3.5 (Accident History), this is not the case.*
- Warrant 8 (Roadway Network)
  - *This warrant only applies to "major routes," which does not include Mills Pond Road. It is not part of the principal roadway network for through-traffic flow; it is not a suburban highway outside, entering, or traversing a city; and it does not appear as a major route on an official plan.*
- Warrant 9 (Intersection Near a Grade Crossing)
  - *This intersection is not near a railroad grade crossing*

Route 25A is the "major road," and the "side road" is Mills Pond Road. Both roads have one approach lane in each direction (the short right turn bay on Mills Pond Road is not considered a lane for the purposes of a signal warrant study). The 85th percentile speed on Route 25A is approximately 40 mph.

Warrant 2 is satisfied based on existing traffic volumes. There is justification for installing a traffic signal at this intersection, so the Build analysis considers a signal being installed at this intersection as an integral component of the application. A formal request will need to be made to NYSDOT, since the signal (like the intersection) would be under NYSDOT jurisdiction. If approved, the State will determine the timing, cycle length, and phasing. For reference, Appendix I includes a copy of NYSDOT correspondence directing Gyrodyne to install a traffic signal at this intersection, associated with a prior application.

Table 5-1: February 2017 Existing Approach Volumes

	VEHICLES PER HOUR	
	NYS Route 25A (total of both approaches)	Northbound Mills Pond Road
Weekday 7-8 am	1,516	80
Weekday 8-9 am	1,703	98
Weekday 9-10 am	1,291	113
Weekday 3-4 pm	1,587	141
Weekday 4-5 pm	1,847	197
Weekday 5-6 pm	1,974	152

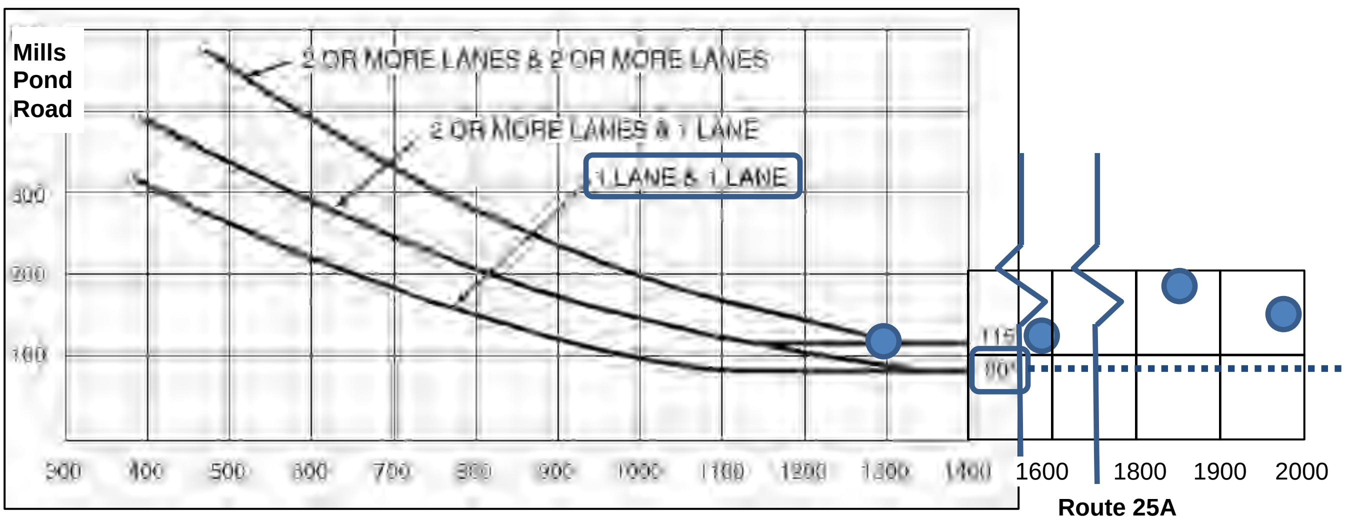
	VEHICLES PER HOUR	
	NYS Route 25A (total of both approaches)	Northbound Mills Pond Road
Friday 6-7 pm	1,031	96
Friday 7-8 pm	713	86

5.1 Warrant 2 – Four Hour Volume

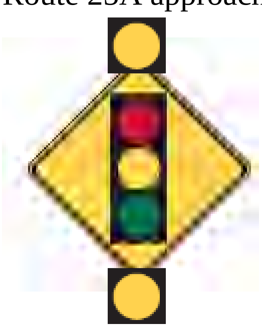
This warrant applies where, for four hours of an average day, the plotted points of the intersection volumes fall above the applicable curve. This warrant is met because the volumes were consistently high enough for four hours. The plotted points are:

- 9-10 am: NYS Route 25A 1,291 ~~ Mills Pond Road 113
- 3-4 pm: NYS Route 25A 1,587 ~~ Mills Pond Road 141
- 4-5 pm: NYS Route 25A 1,847 ~~ Mills Pond Road 197
- 5-6 pm: NYS Route 25A 1,974 ~~ Mills Pond Road 152

Figure Source: MUTCD page 440, Figure 4C-1: Warrant 2, Four-Hour Vehicular Volume
Accessed at https://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf



Since existing volumes satisfy a signal warrant, the future and higher Build scenario volumes will justify a traffic signal. In the interest of traffic safety, our office would recommend a "Signal Ahead" sign with flashing beacons, posted in both directions of Route 25A approaching the new signal, subject to NYSDOT approval.



6. Future Conditions with the Subdivision – The Build Scenario

As stated in Section 2, this Build Scenario is not necessarily the final land use mix. It is one of several potential land use mixes that have similar numbers of site-generated trips, reflect detailed market analysis, and achieve Gyrodyne's goals. This detailed analysis was developed so that future lot owners can rely on this traffic study, associated DEIS, and the Town's findings to develop individual lots and install any necessary traffic mitigation.

6.1 Site Access

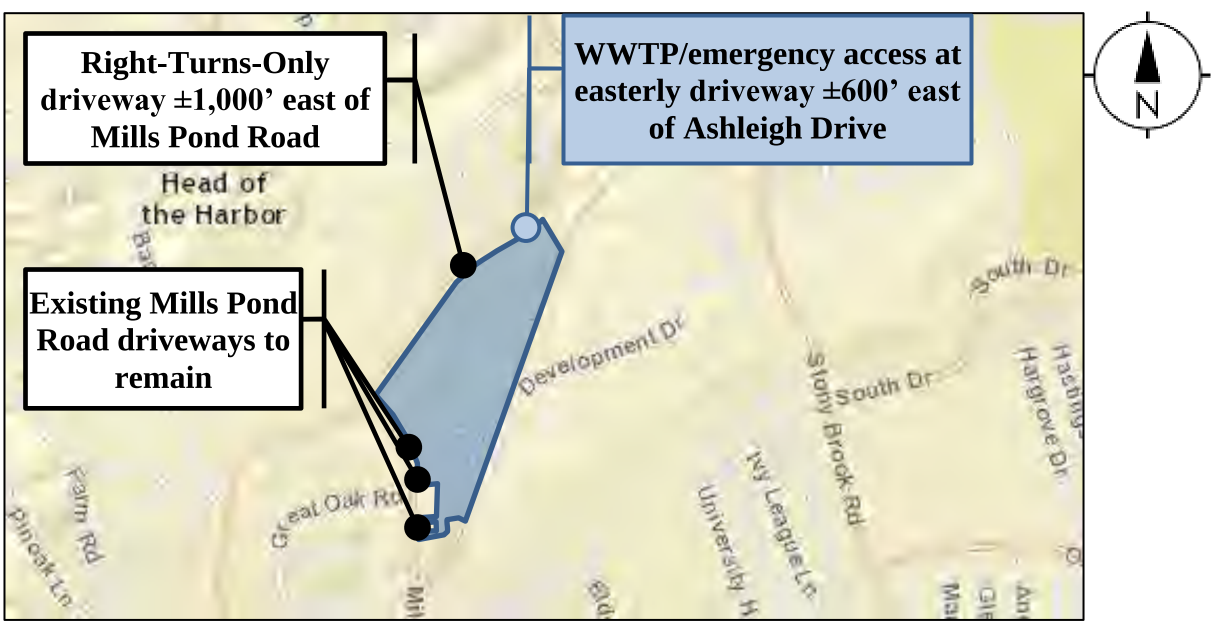
As shown on the Cameron Engineering Preliminary Subdivision Map (Appendix J), the existing main access points on Mills Pond Road will remain as T-intersections with one combined exiting lane for left and right turns.

The existing easterly curb cut (±600 feet east of Ashleigh Drive) will be repurposed for emergency use and for the on-site wastewater treatment plant (WWTP), which will have an interior gated connection to the cul-de-sac at the end of on-site Road B (discussed below in Section 6.2, Interior Roads).

There will be a new Route 25A right-turns-only driveway near the approximate midpoint of Gyrodyne's frontage. The right-turns-only configuration is per NYSDOT directives.

As will be discussed later in this report (Section 9, Alternate Development Scenarios) an alternate considers re-opening the grade crossing between Gyrodyne and the Stony Brook Research and Development Park.

Figure 6-1: Site Access Schematic



The Route 25A access is necessary for several reasons. The subdivision needs access to Route 25A to distribute traffic and avoid concentrating trips on Mills Pond Road. Without this driveway, the Route 25A-Mills Pond Road intersection would need much more mitigation, including road widening and likely property acquisition on both sides of both streets. Additionally, the relocated position is better suited for a driveway. It is situated near the middle of the frontage (aids traffic distribution) and it is on the relatively straight segment of Route 25A, which avoids sight line issues related to the curvature of the road. Its location also has a gentler grade change from Route 25A, which means less earthwork activity (and associated construction trucks) and a more comfortable ride once the subdivision uses are active. Along the same lines, the existing curb cut is more appropriate for WWTP access. The WWTP will have minimal traffic and it will be located on the far eastern section of the subdivision, so the natural choice for WWTP access is as far east as possible. More importantly, Suffolk County Department of Health Services (SCDHS) has stringent requirements for WWTP access roads, including a 100-foot buffer around the WWTP, which is best satisfied by the existing curb cut.

6.2 Interior Roads

The interior roads will be part of Lot 9. The roads may be privately owned and maintained or they may become public rights-of-way (possibly depending on the Town's preference). The road ownership will not change the proposed road configuration or the results of this traffic study, since the roads have been laid out to satisfy Town and County requirements and to incorporate Complete Streets elements.

- All interior roads will have 60 feet of right-of-way (ROW) per Town requirements. The ROW will comprise 30 feet of pavement plus reinforced turf swales on either side; the swales will primarily be for stormwater flow and recharge. The 30-foot pavement width will be suitable for vehicles and for shared-use space for pedestrians and bicyclists (see Figure 6-2 on the next page).
- One road will be a cul-de-sac less than 350 feet in length to satisfy Town requirements.
- The access to the proposed WWTP is designed according to Suffolk County Department of Health Services standards.

The overall interior road layout is depicted in Figure 6-3 on the next page. "Road A" will connect the main Mills Pond Road access to the right-turns-only access on Route 25A. "Road B" will be a short cul-de-sac connecting Road A to the easterly lots; its turnaround radius will be large enough to accommodate a fire truck. "Road C" will connect Road A to the cross access between Lots 1 and 3.

Figure 6-2: Proposed Interior Road Cross Section

This figure depicts the Complete Streets design approach (suitable width for shared-use)

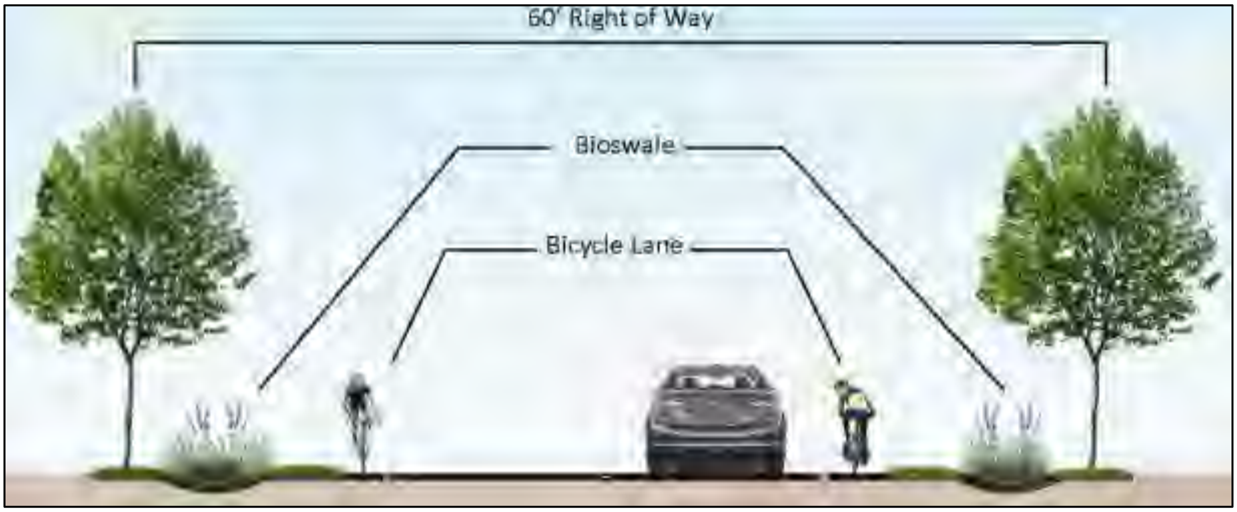
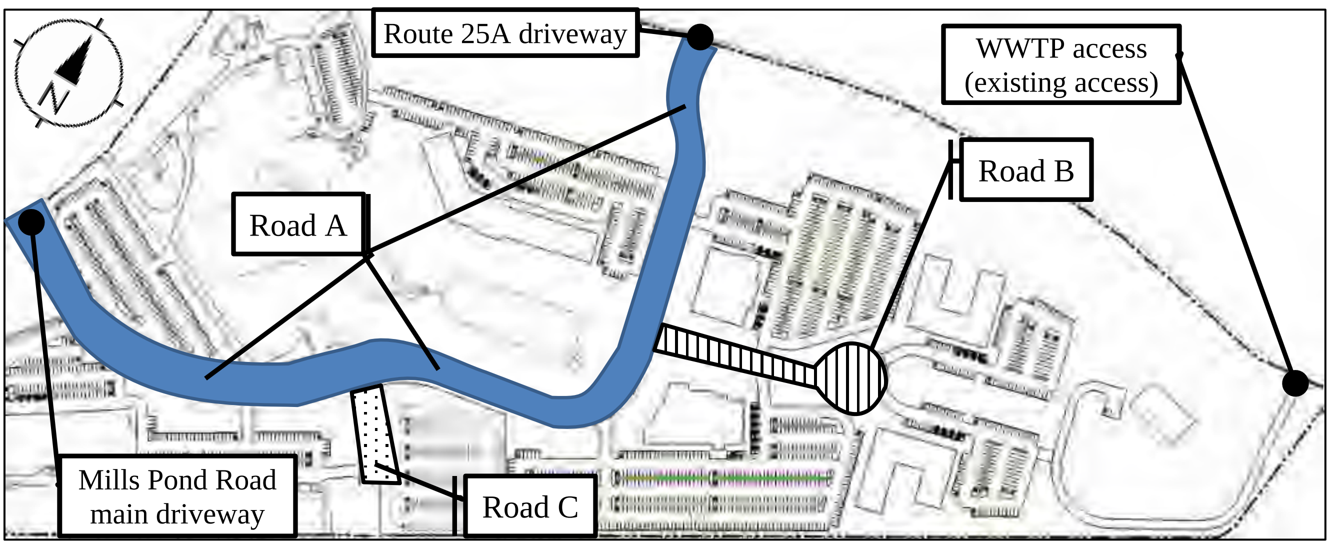


Figure 6-3: Interior Roads[6]



6.3 Driveway Traffic Control

Cameron Engineering conducted signal warrant analyses to determine if any of the existing or proposed driveways would justify a traffic signal based on future traffic volume (see Appendix F). Based on the analyses, none of these driveways warrant a signal, so each one will be unsignalized and controlled with stop signs for the driveway exit (Route 25A and Mills Pond Road will not have stop signs).

[6] Should the possible future re-opening of the railroad crossing occur later (see Alternatives discussion in Section 9.1), Road C could be extended south to the grade crossing. As discussed above, re-opening the crossing, and related road improvements, are not part of the proposed subdivision at this time.

6.4 Auxiliary Lanes

Motorists who turn onto a driveway usually slow down to navigate the turn. When they exit, they must accelerate quickly to merge with the traffic on the main road. Drivers need room to safely change speed. Depending on the area's prevailing conditions (mainly, the turning and conflicting volumes, 85th percentile roadway speed[7], and sight distance) there may be a need for speed-change lanes to provide room for this. The relevant design guideline is the text, *A Policy on Geometric Design of Highways and Streets*, published by the American Association of State Highway and Transportation Officials (AASHTO), and anecdotally known as the "Green Book." The Green Book does not list specific criteria for speed-change lanes, but the lanes can be recommended under certain conditions.

The prevailing mainline speed on Route 25A is roughly 35-40 mph (lower during peak periods); Mills Pond Road speeds are close to 30 mph. There is no apparent sight distance issue based on road geometries, the proposed Route 25A driveway has better sight lines than the current apron. The other driveways are already in use. The proposed subdivision will not have a significantly high number of generated trips at any individual driveway, which minimizes the potential for genuine friction between through traffic and turning traffic. As a secondary consideration, it suits the character of the area if there are no acceleration/deceleration lanes at the site driveways. It is not proposed to construct these lanes.

6.5 Complete Streets: Pedestrian Conditions, Bicycling, Transit

The proposed subdivision uses are not anticipated to generate significant numbers of pedestrians traveling to/from off the property, but will be designed to facilitate walking within the campus. The Preliminary Subdivision Plan includes a number of elements meant to encourage walking and foster pedestrian connectivity:

- Parking lot/median layout between on-site lots with room for walkways
- Site design with a campus-like environment that will include an internal trail network with expansive open space
- 200-foot minimum buffer along North Country Road to maintain views
- Interior connection between the Flowerfield catering hall and the hotel parking lots
- Proposed interior road cross section with sufficient width for shared-use space for pedestrians and bicyclists throughout the subdivision

The subdivision plan reflects space for features that encourage walking. Specific pedestrian amenities will be developed during the site plan phase(s) in consultation with the Town.

[7] The speed below which 85% of drivers move. If 85% of drivers are below 40 mph, the 85th percentile speed is 40 mph.

Bicycle amenities are under preliminary consideration as well. Gyrodyne will reach out to the Stony Brook University Office of Sustainability to communicate about potential bicycle connections, bike route signage, bicycle parking, or other amenities that may serve bicyclists. This communication is best suited for the site plan phase. At this stage, there could be signage to direct cyclists to the ±4.6-mile SUNY Stony Brook-Paul Simons Memorial Bike Path, which is open to SUNY and to the public and which connects to the Stony Brook LIRR station. As shown in Figure 6-4, the other bicycle facilities in the area comprise Class 3 facilities, in that bicycles share the roadway with vehicle traffic.

Figure 6-4: NYSDOT Bike Map[8]

Additionally, Gyrodyne had reached out to the Stony Brook University Director of Transportation and Parking about the potential for new bus stops/connections at and near the subdivision, as part of actively coordinating the potential re-opening of the railroad crossing (now clarified as a "possible/future re-opening" as discussed above).

The goal is to allow for non-motorized travel and provide suitable accommodations for pedestrians, bicyclists, and transit riders.

6.6 Parking

Based on the proposed land use mix, Cameron Engineering believes the Town will require 2,346 parking spaces for the subdivision, considering the vacant space in the existing LI

[8] Accessed via https://www.dot.ny.gov/bicycle/maps

buildings could be tenanted with 50% office/50% light industrial uses. This is a conservative analysis; the existing Lot 1 buildings have historically had low-intensity parking demand. For example, in February 2017, the buildings were 70% rented and occupied, but only required 182 parking spaces, 38% of the calculated Code requirement.

<u>Lot 1: Existing Mixed-Use Buildings: 660 spaces</u>

- Existing buildings: 478 spaces
  - Light industrial uses at 1 space per 500 s.f. x 33,615 s.f. = 67.2 = 68
  - Retail uses at 1 space per 100 s.f. x 750 s.f. = 7.5 = 8
  - Office/medical office uses at 1 space per 150 s.f. x 25,481 s.f. = 169.87 = 170
  - Fitness center over 5,000 s.f. at 1 space per 150 s.f. x 15,491 = 103.27 = 104
  - Fitness center under 5,000 s.f. at 1 space per 100 s.f. x 3,469 = 34.69 = 35
  - Education uses at 1 space per 100 s.f. x 7,904 s.f. = 79.04 = 80
  - Exhibition Space at 1 space per 150 s.f. x 1,905 s.f. = 12.7 = 13
- Future new tenants to reach full occupancy (41,911 s.f. vacant): 182 spaces
  - Light industrial uses at 1 space per 500 s.f. x 20,956 s.f. = 41.9 = 42 spaces
  - Office/medical office uses at 1 space per 150 s.f. x 20,956 s.f. = 139.71 = 140

<u>Lot 2: Existing Catering Hall: 219</u>

- 1 space per 4 people x 874 people (maximum rated occupancy) = 218.5 = 219

<u>Lot 3: Landbanked Parking: 0</u>

<u>Lot 4: Proposed Hotel with Restaurant: 380</u>

- 1.25 spaces per hotel room x 150 = 187.5 = 188
- 1 space per 150 s.f. day spa/fitness x 10,000 s.f. = 66.67 = 67
- 1 space per 4 conference center seats x 500 = 125

<u>Lot 5: Proposed Office: 369</u>

- 1 space per 150 s.f. x 55,350 = 369

<u>Lot 6: Proposed Office: 498</u>

- 1 space per 150 s.f. x 74,650 = 498

<u>Lot 7 and Lot 8: Proposed Assisted Living: 110 for each lot = 220</u>

- 1 space per unit x 220 = 220

<u>Lot 9: Proposed WWTP: 2 (spaces for workers)</u>

There is no Town requirement for parking at a wastewater treatment plant, which would have little to no need for any parking, most of the time. Two spaces are provided for periodic use by WWTP or County personnel.

6.6.1 Landbanked and Shared Parking

As a "green" planning measure, some of the required parking would be satisfied using spaces that are shared[9] among adjacent lots, and/or landbanked[10] spaces that can be set aside as green space, and only paved if they are genuinely needed. The following section explains what this means and the rationale behind this approach.

One goal of this mixed-use subdivision is to avoid paving too many new parking spaces, and in turn, to minimize the loss of green space, to retain a more rural character on-site, and to present a "green," Complete Streets-oriented approach. This application's complementary uses (peak parking needs occur at different times) make this a suitable opportunity for landbanked and shared parking.

- The existing industrial uses are busiest during weekday daytime periods, whereas the catering hall is busiest on weekends and on Friday/Saturday/Sunday evenings
- Office/medical office uses are busiest mid-morning and mid-afternoon, and medical offices are busy on weekday evenings
- The hotel and conference center would be complementary uses to the catering hall with hotel occupants attending catering and conference events

<u>Landbanked Parking</u>
Lot 1 will satisfy the Town's parking ratio with shared parking on Lot 2, since catering is less active on weekdays, when the uses of Lot 1 are active, and vice versa. Parking on Lot 3 could support additional development on Lot 1.

Lot 3 is situated within the area formerly utilized as a bus depot for Towne Bus, a former tenant (see Figure 6-5 on the next page). The small unbuilt areas in Lot 3 would remain landbanked, and the areas already paved would remain as they are today, with no earthwork or disturbance. This is appropriate for parking purposes because Lot 1 historically has had low parking demand relative to building occupancy. Further, the existing buildings would generate less parking demand (up to 172 spaces) than the Town requires, according to the Institute of Transportation Engineers (ITE) *Parking Generation* manual, 4th Edition. The proposed plan has 441 paved spaces on Lot 1. When/if the Lot 1 buildings become fully tenanted and occupied, the property owner(s) could repave and stripe all of Lot 3, but only if necessary to satisfy parking demand. This would allow for additional open space to remain until higher Lot 1 parking demand occurs (if it ever does).

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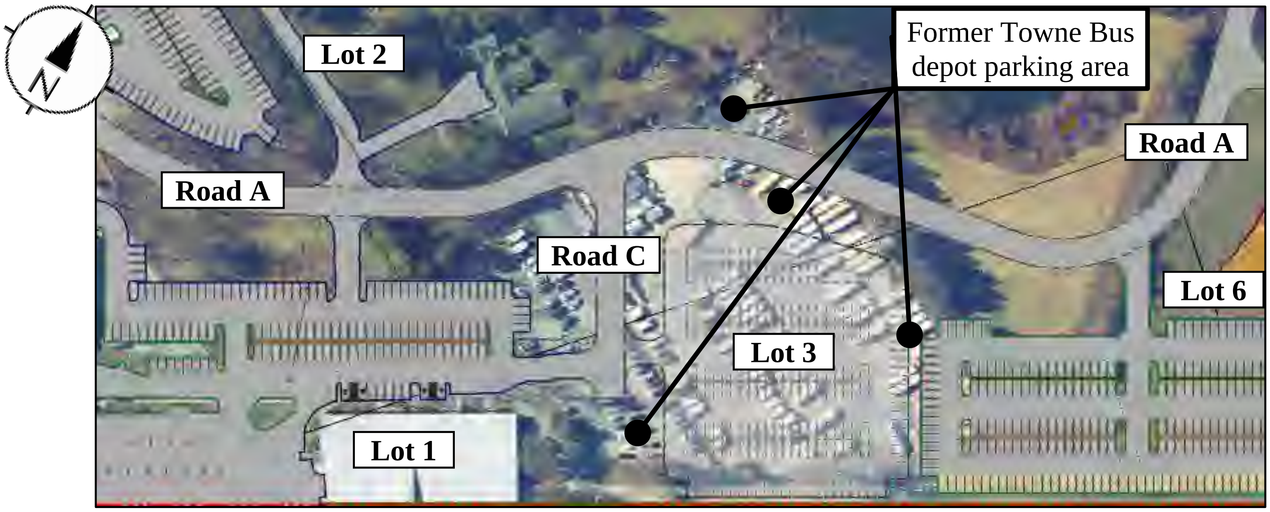
[9] Shared parking: spaces that will serve different land uses at different times of the day or week, potentially on a different Lot than the land use it serves
[10] Landbanked parking: spaces that will not be paved (i.e. kept green), which can be utilized as temporary overflow if needed, and which can be paved in the future if needed on a regular basis

Figure 6-5: Lot 3 Context



Similarly, Lots 5 and 6 (office space) each satisfy the Town's "1 space per 150 s.f." ratio by total parking (paved plus landbanked). Each lot is shown with ±16% landbanked parking, equal to "1 paved space per 175 square feet." The ITE-recommended provided parking for 130,000 s.f. of medical office would be 429 to 555 spaces for the two lots, whereas the lots are designed with 726 paved spaces (308 + 418). This is more than sufficient to satisfy anticipated demand. Subject to Town review and approval, should the first office tenants be R&D or general office in nature (rather than medical office), this would reduce genuine parking demand, and perhaps more parking could remain landbanked. The 16% landbanked component represents the maximum case with medical office tenants.

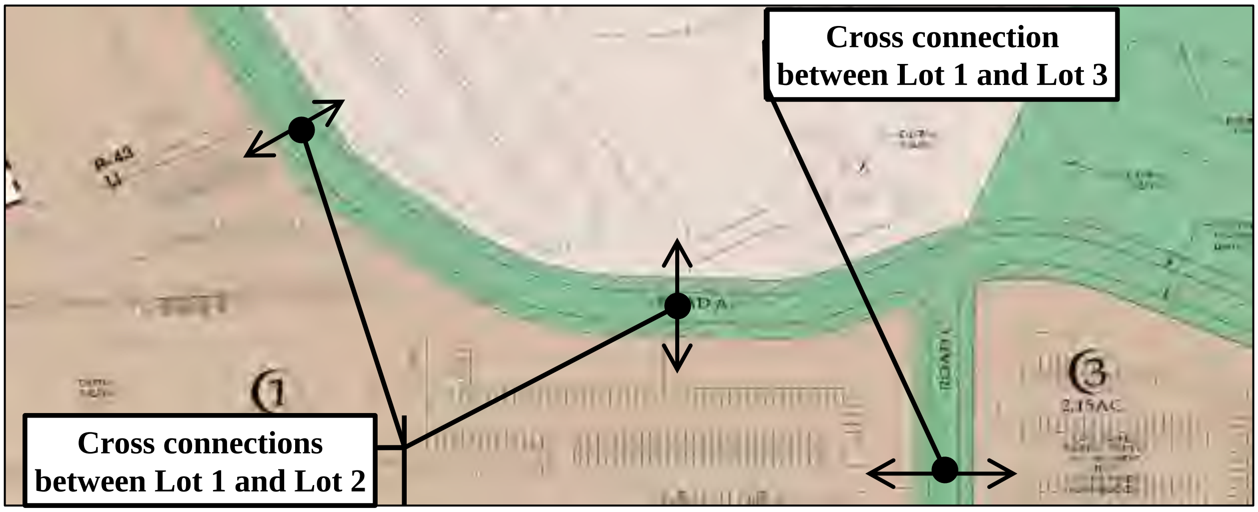
Landbanking will allow open space to remain, until such time as a need is shown for the landbanked spaces, if ever.

Shared Parking

Shared parking is a sustainable design technique which provides only the amount of parking truly needed for "complementary uses" (meaning, nearby land uses that are active at different times). The concept is to allow the same parking spaces near each land use to serve each land use, one at a time, instead of paving "extra" parking spaces that are not genuinely needed. By paving fewer spaces, more land can be devoted to green space.

The proposed mix of uses illustrates this concept well. The catering facility is most active on nights and weekends, while the industrial space is most active during typical work hours on weekdays. Parking spaces near either facility can serve either use, so sharing some parking spaces makes sense. Shared lots that may utilize shared parking will have cross-connections for drivers to go directly across between lots, with little to no offset on interior roads. Figure 6-6 (an excerpt of the Subdivision Plan) illustrates this concept, for connections between Lots 1, 2, and 3. Lot 3 (if needed to be built) is meant to support potential expansion on Lot 1. Lot 2 inherently has excess parking that can serve Lot 1 and/or Lot 4 (the proposed hotel/conference center).

Figure 6-6: Subdivision Plan Excerpt



As summarized in Table 6-1 and Table 6-2 on the next page, the Preliminary Subdivision Plan provides sufficient overall parking, incorporating shared parking: some individual spaces can serve different uses at different times.

Operationally, there is sufficient parking on each individual subdivided lot, even if the office space is medical office (higher actual demand than R&D or general office), and even if some of the lots are developed jointly. For example, Lots 5 and 6 could be developed with a single office use, and Lots 7 and 8 could be developed as a single assisted living development.

- 2,002 paved parking spaces
  - 796 out of 912 existing parking spaces will remain
  - Proposed Road A, Road B, and Road C will displace 116 existing parking spaces
- 141 landbanked parking spaces in Lots 5 and 6, plus another 181 spaces in Lot 3 which will remain undisturbed
- 341 spaces to be shared between Lots 1, 2, 3, and 4
  - These paved spaces will function as if they are paved multiple times to serve adjacent lots
- Net available parking = 2,002 paved + 141 landbanked + 341 shared + 181 in Lot 3 = 2,665

Table 6-1: Parking on Lot 1 and Lot 2 (Existing Uses)

Lot	Land Use	Required Spaces	Existing Parking	Displaced/Removed	*Shared Parking*	Total Available
1	Mixed-Use Buildings	660 with full occupancy	557	-116 spaces displaced by Roads A, B, C	*At least 219 on Lot 2 (catering hall) are available for Lot 1 during weekday daytime periods*	660 total 441 *+ 219 shared*
2	Catering Hall	219	355	0		355 during evenings and weekends
Total Parking: Existing Uses		879	912			796 paved + *219 shared* = 1,015
Lot 1 will have access to 660 or more spaces because Lot 2 (a catering hall) utilizes little or no weekday daytime parking. Lot 2 will have more parking than required by code.						

Table 6-2: Parking on Lots 3 through 9 (Potential New Uses)

Lot	Land Use	Required Spaces	Proposed Parking			Total Available	Notes
			Paved and Striped	Land-banked	Shared		
3	Landbanked Parking	0	0	181	0	181	181 excess spaces
4	Hotel w/Restaurant	188	258	0	0	258	380 required, 380 available *including shared parking*
	Day Spa/Fitness	67					
	Conference Center	125	0	0	*122 with Lot 1, 2, or 3*	*122 with shared spaces*	
5	Medical / R&D Office	369	308	61	0	369	369 required 369 available *including landbanked*
6	Medical / R&D Office	498	418	80	0	498	498 required 498 available *including landbanked*
7	Assisted Living	110	110	0	0	110	110 required 110 available
8	Assisted Living	110	110	0	0	110	110 required 110 available
9	WWTP	0	2	0	0	2	2 excess spaces
Total Parking: New Uses		1,467	1,206	322	122	1,650	

- Total Paved parking spaces: 796 + 1,206 = 2,002 (including 122-219 spaces that can serve two or three uses)
- Total Land-banked parking spaces: 322
- Total Available parking spaces, including shared and land-banked spaces: 1,015 + 1,650 = 2,665
- Total Required parking spaces: 879 + 1,467 = 2,346

6.7 *Trip Generation*

The future Build volumes were determined by adding site-generated traffic to the No Build volumes. This was done by determining the number of site trips, distributing these trips to the proper approaches, and adding the site trips to the No Build volumes. Trip generation information was referenced from the 10th Edition of the Institute of Transportation Engineers (ITE) *Trip Generation* manual published in 2017. For the purposes of this report, it was considered that the peak site-generated traffic would coincide with the peak travel periods on the surrounding roadways. Each potential office use (medical, R&D, or general office) are shown below, but the highest-volume option (medical) was utilized for analysis, to be conservative. Finally, one of the major goals of the recent update to the *Trip Generation* Manual was to provide the ability to utilize location-specific data; New York is part of the "Northeast-Atlantic Region." For each land use that has region-specific data, the region-specific data was utilized for this analysis. This eliminates, for example, study sites in Canada or in isolated locations in the Midwest.

Table 6-3: Baseline Trip Generation

* tph = trips per hour; trips may not add directly due to rounding

Land Use	**AM Peak Hour**	**PM Peak Hour**	**Saturday Peak Hour**
R&D Office	Enter: 41 tph* Exit: 14 tph Total: 55 tph	Enter: 10 tph Exit: 54 tph Total: 64 tph	Enter: 16 tph Exit: 16 tph Total: 32 tph
General Office	Enter: 130 tph Exit: 21 tph Total: 151 tph	Enter: 24 tph Exit: 126 tph Total: 150 tph	Enter: 37 tph Exit: 32 tph Total: 69 tph
Medical Office**	Enter: 194 tph Exit: 52 tph Total: 245 tph	Enter: 109 tph Exit: 281 tph Total: 391 tph	Enter: 89 tph Exit: 67 tph Total: 157 tph
Hotel	Enter: 41 tph Exit: 29 tph Total: 70 tph	Enter: 46 tph Exit: 44 tph Total: 90 tph	Enter: 60 tph Exit: 47 tph Total: 108 tph
Assisted Living	Enter: 26 tph Exit: 15 tph Total: 42 tph	Enter: 22 tph Exit: 35 tph Total: 57 tph	Enter: 27 tph Exit: 32 tph Total: 59 tph
Total Trips	Enter: 261 tph Exit: 96 tph Total: 357 tph	Enter: 177 tph Exit: 360 tph Total: 538 tph	Enter: 176 tph Exit: 146 tph Total: 323 tph

** Considers 30% of the medical office tenants would be open on Saturdays. Because medical office is the highest trip generating office use, this study considers 100% medical office, to be conservative. If the eventual development includes general or R&D office, the resulting trip generation will be smaller than what this study reflects.

Consider medical office use – if R&D or general offices are built instead, there will be fewer trips than shown here

An important point with this traffic study is that it considers the office space being medical office space. It is reasonable to expect a sizeable R&D component at the subdivision based on the adjacent proximity to the Stony Brook R & D Park. If the office tenants are general or R&D (rather than medical) tenants, there would be up to 125-327 fewer peak hour trips (39%-61% less) than what is analyzed in this study.

6.7.1 Internal Trips

The above table reflects the baseline condition, prior to accounting for local conditions and the mixed-use nature of the subdivision. The proposed subdivision comprises a mix of land uses in close proximity to one another with common access driveways and an expected degree of synergy (i.e. multiple uses that attract/serve the same people). It is therefore reasonable that some of the people who will drive to/from the property for one land use will associate with other land uses within the subdivision as well. For example, assisted living residents could patronize the medical offices, while people visiting the catering facility could stay over at the proposed hotel.

This type of traffic pattern yields what are known as “internal trips” because the trips remain on internal site roads rather than being external (using roads like Route 25A). This subdivision’s internal trips will reduce potential off-site traffic and make use of synergies within the subdivision.

1) Internal trips between uses on the Gyrodyne subdivision
   - 5% between most uses
   - 20% between the Flowerfield catering hall and hotel/conference center

For every use except the hotel and conference center, a conservative, nominal 5% trip credit was applied to denote 5% of peak hour trips being made internally instead of utilizing Mills Pond Road or NYS Route 25A.

The hotel and conference center would experience a much greater internal trip component. The hotel lot is purposely assigned as the adjacent lot to Flowerfield Celebrations because hotels and catering halls solidly complement one another. Wedding guests stay at hotels, and catering halls provide enhanced service at conference center events. Therefore, for the proposed hotel and conference center, a 20% internal trip credit was applied. Along the same lines, the synergy between the proposed hotel and the existing catering hall would reduce catering hall peak hour trips. Therefore, the trips associated with a near-peak catering hall event (see Section 4.3 starting on page 4-1) were reduced by the same 20%.

The internal trip percentages are shown schematically in Figure 6-7 on the next page, followed by Table 6-4 with the resulting net new exterior trip volumes.

Figure 6-7: Internal Trips Schematic Diagram

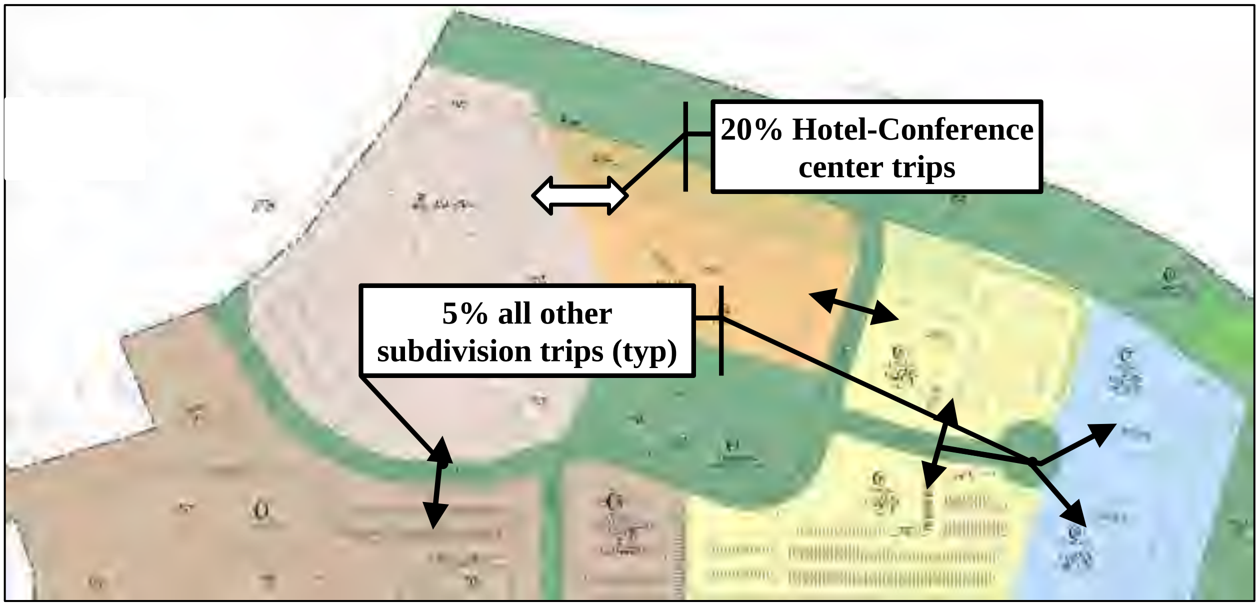


Table 6-4: External Site-Generated Peak Hour Trips

Subdivision Land Use	AM Peak Hour	PM Peak Hour	Saturday Peak Hour
Medical Office	Enter: 184 tph Exit: 49 tph Total: 233 tph	Enter: 104 tph Exit: 267 tph Total: 371 tph	Enter: 85 tph Exit: 64 tph Total: 149 tph
Hotel	Enter: 33 tph Exit: 23 tph Total: 56 tph	Enter: 37 tph Exit: 35 tph Total: 72 tph	Enter: 48 tph Exit: 38 tph Total: 86 tph
Assisted Living	Enter: 25 tph Exit: 15 tph Total: 40 tph	Enter: 21 tph Exit: 33 tph Total: 54 tph	Enter: 26 tph Exit: 30 tph Total: 56 tph
Total Trips	Enter: 242 tph Exit: 87 tph Total: 329 tph	Enter: 162 tph Exit: 336 tph Total: 497 tph	Enter: 159 tph Exit: 132 tph Total: 291 tph

6.8 Distribution and Assignment of Site-Generated Traffic

Cameron Engineering next determined the peak volumes of traffic the subdivision's proposed land uses would generate in each direction at each key intersection. This was done by performing a directional distribution analysis, to determine the percentages of site trips which will occur during typical peak hour periods at each intersection approach. For example: "*15% of exiting trips will make the northbound left turn at the intersection of...*" Peak hour entering trips will likely be mainly from the south of the site, with smaller percentages originating from the north, east, and west. While Route 25A is the closest major through route, there are numerous generators and access routes south of the site (e.g. Route 347). Few trips will originate from the north, a less densely developed area with no major land uses to generate traffic destined for the subdivision.

The distribution percentages were tailored slightly for the industrial/caterer uses (whose main access will be on Mills Pond Road) vs. the proposed new uses (some will be best accessed via the new Route 25A driveway, if they approach from the west). The overall approximate distributions were assigned as:

Table 6-5: Basic Site Trip Distribution

Internal Connection Trips	**Percentage of Internal Trips**
Overall trips to be internal within the subdivision	5% of overall trips
Hotel trips to/from Flowerfield Catering Hall	20% of hotel trips
Flowerfield Catering Hall event trips to/from hotel	20% of caterer event trips
External Trips: Origin/Destination	**Approximate External Distribution**
To/from the northwest via Route 25A/Lake Avenue	20%
To/from the northeast via Route 25A	5%
To/from the southwest via Mills Pond Road	35%
To/from the south via Lake Avenue	5%
To/from the south via Stony Brook Road	15%
To/from the northeast/southeast via CR 97-Oxhead Road	20%

Once the distributions were established, they were used to calculate specific trip numbers. For example: "*15% of 100 PM trips out of the site trips equals 15 trips added to northbound Street 'X' during the PM peak hour…*"

Table 6-6 on page 6-20 illustrates the existing, No Build, and Build volumes, the precise trip distribution percentages, plus any percentage changes in movement volume between the No Build and Build scenarios. The figures that follow depict the distribution of site traffic and the corresponding volumes. These generated volumes were added to the No Build volumes to determine the Build volumes, which are shown in Figure 6-13 through Figure 6-15 at the end of this section.

6.8.1 Potential Diverted Traffic

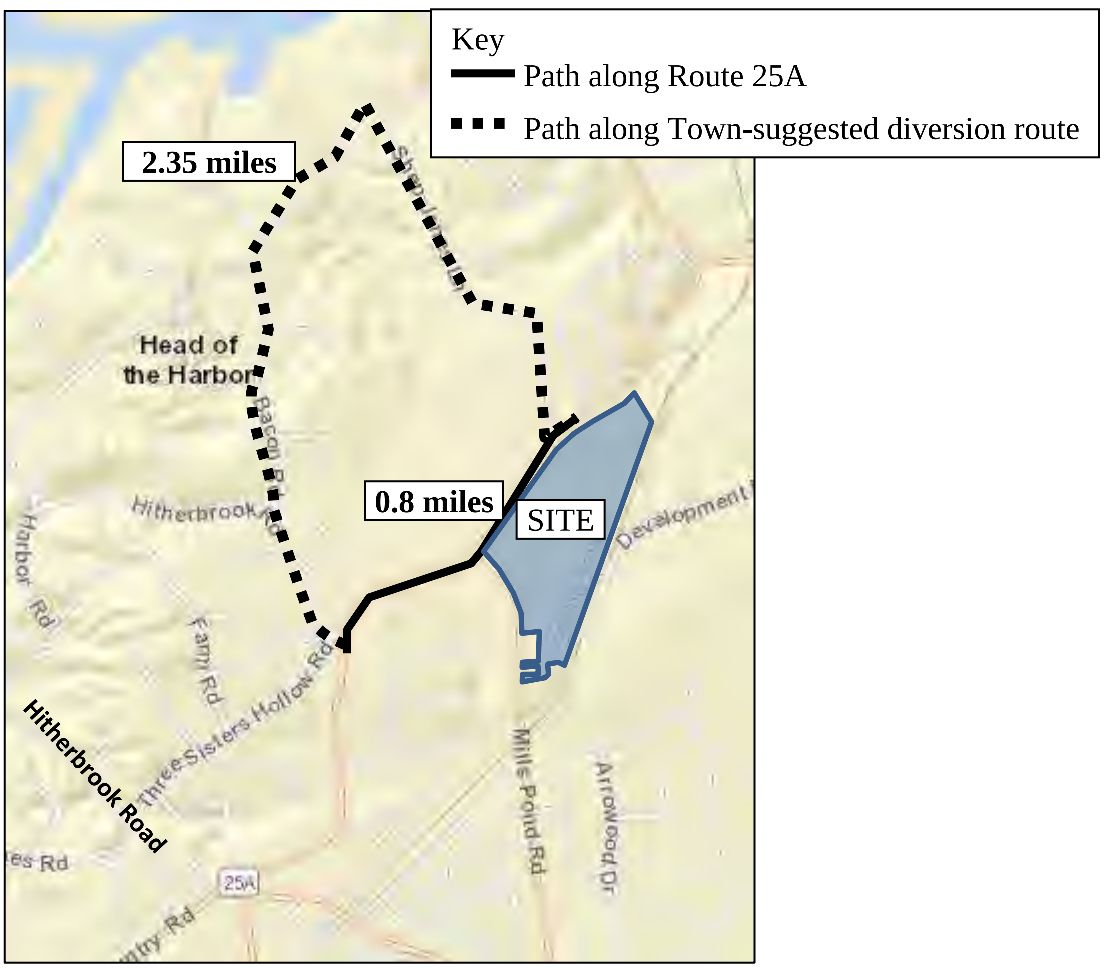
The Scoping Document suggests that increased traffic on Route 25A might encourage drivers to divert to local roads such as Harbor Road/Harbor Hill Road, Hitherbrook Road, and Three Sisters Hollow Road. Individual drivers are only expected to utilize these side streets if they are headed to a location only accessible via these side streets. The proposed subdivision is not expected to incur diverted trips on a regular basis for two reasons. First, the subdivision will not generate undue delays. More importantly, the approaches to these potential routes discourage drivers from diverting off a 35 mph arterial by nature of appearing to drivers to have noticeably slower travel speeds and longer travel times.

Sample diversion routes are discussed below as they relate to travel along Route 25A from certain intersections to/from the proposed right-turn-only site access.

<u>Potential diversion route 1: Route 25A/Hitherbrook Road to Route 25A driveway Via Bacon Road, Harbor Road, and Shep Jones Lane</u>

The direct route along Route 25A from Hitherbrook Road to the proposed site access is approximately 4,100 feet (0.8 miles), while the potential diversion route on Hitherbrook Road, Bacon Road, and Shep Jones Lane is 2.35 miles. Tripling the distance at an average 20 mph speed would add nearly 5 minutes of travel time, far longer than the potential 25-55-second delays to through-moving traffic, associated with LOS C, LOS D, or LOS E at the selected intersections on Route 25A.

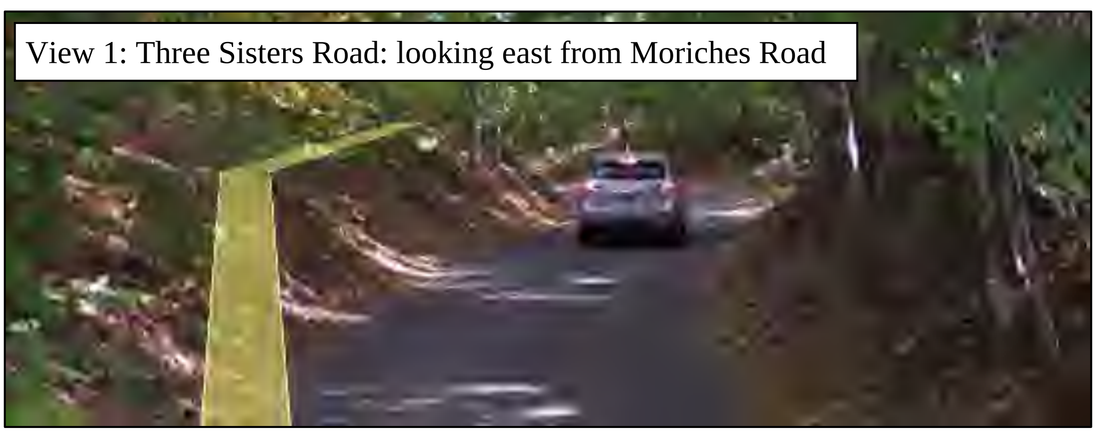
Figure 6-8: Town-Suggested Potential Diversion 1



<u>Potential diversion route 2: Route 25A/Moriches Road/Three Sisters Road to Route 25A/Hitherbrook Road via Three Sisters Road and Thompson Hill Road</u>

This Town-suggested diversion routes have an equitable travel distance, but longer travel times, because of their geometry, lower speed limits, and narrower visual field (which discourages speeding) in part due to dense overhanging vegetation. Below are street view images as one heads east from Moriches Road, and west from Route 25A. The side streets appear to drivers as slow-moving facilities; this will discourage drivers from diverting off Route 25A because it will not achieve the goal of saving travel time.

Figure 6-9: Town-Suggested Potential Diversion 2



View 1: Three Sisters Road: looking east from Moriches Road

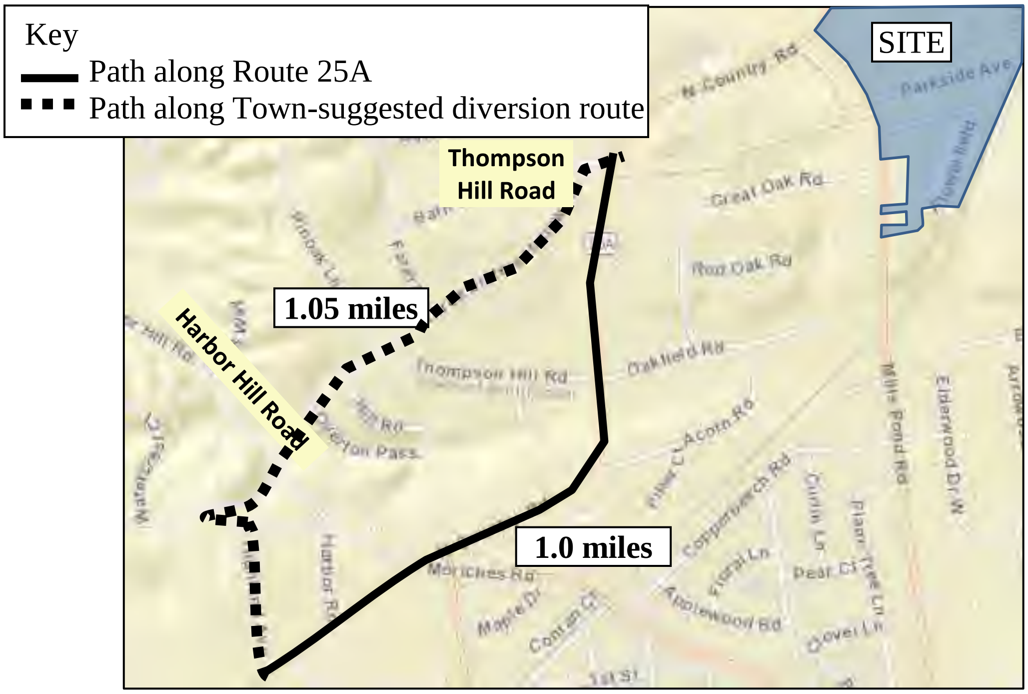
View 2: Three Sisters Road: looking west from Route 25A

View 3: Looking west at Thompson Hill Road from Route 25A

As one drives west from Route 25A on Hitherbrook Road, there are “25 mph” and “15 mph school speed limit” signs at the east end of Hitherbrook, whereas the Route 25A speed limit is 35 mph. It discourages diverted trips to shift to a lower-speed roadway; it increases perceived travel time to slow down and utilize the side street.

Finally, the only reason to take Moriches Road west of this diversion route is to access one of just a few local streets in the Village of Nissequogue. This route does not lead back to Route 25A, and will not attract cut-through traffic.

Potential diversion route 3: Route 25A/Highland Avenue to Route 25A/Hitherbrook Road via Highland Avenue and Three Sisters Road



This potential diversion route is also not likely to be utilized by cut-through traffic. While its length may be comparable to the direct path along Route 25A, the diversion route is slower and uninviting to drivers. It is a low-speed facility with a slower speed limit, a narrow field of view, and dense overhanging vegetation. Its approach discourages drivers who may be looking to shorten their travel time.

Taking Harbor Road instead of Highland Avenue does not increase the likelihood of diverting off Route 25A, for the same reasons. Below is the view as one looks east from Route 25A; the 15 mph speed limit sign on Harbor Road is visible, as is a movable gate:

Looking east-north at Harbor Road from Route 25A

To summarize, it is very unlikely that drivers would divert off the direct, higher-order roadway with more capacity unless the drivers are already headed to these local side streets.

Trip Distribution & Assignment (If no Railroad Crossing)
Growth Factor: 1.1% for 3 years, to 2020
3-year multiplier: 1.033

Passby Percentages
0% Weekday
0% Weekend

Existing volumes x 1.033 to show 3 years of ambient growth

	130,000 s.f. Medical Office			220 Assisted Living units			150-room Hotel, Restaurant			Total Site-wide		
	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT
Enter	184	104	85	25	21	26	33	37	48	242	162	159
Exit	49	267	64	15	33	30	23	35	38	87	336	132
Total	233	371	149	40	54	56	56	72	86	329	497	291

AM PHF / PM PHF / SAT PHF	Dir.	Mvmt.	2017 Existing Volumes AM	PM	SAT	2020 No Build Volumes AM	PM	SAT	Distribution %Enter	%Exit	Medical Office Traffic AM	PM	SAT	Distribution %Enter	%Exit	Assisted Living Traffic AM	PM	SAT	Distribution %Enter	%Exit	Hotel Traffic AM	PM	SAT	Total Site Traffic AM	PM	SAT	2020 Build Volumes AM	PM	SAT
Mills Pond Road and NYS Route 25A																													
Peak hours start at	NB	Left	11	36	25	14	50	37		21%	10	56	13		25%	4	8	8		25%	6	9	9	20	73	30	34	123	67
745 1630 1230		Right	78	136	85	91	169	112	18%		33	19	15	24%		6	5	6	24%		8	9	12	47	33	33	138	202	145
	EB	Thr	844	1,005	567	958	1,131	656	21%		39	22	18	25%		6	5	6	25%		8	9	12	53	36	36	1,011	1,167	692
		Right	42	47	44	57	56	57			---	---	---			---	---	---			---	---	---	0	0	0	57	56	57
Hourly Peak Hour	WB	Left	35	89	110	55	104	137	51%		94	53	43	41%		10	9	11	41%		13	15	20	118	77	74	173	181	211
Factors (PHFs)		Thr	811	828	461	914	939	533			---	---	---			---	---	---			---	---	---	0	0	0	914	939	533
0.95 0.95 0.98	Intersection																												
Stony Brook Road and NYS Route 25A																													
Peak hours start at	NE	Thr	576	845	483	647	952	560		5%	2	13	3		5%	1	2	2		5%	1	2	2	4	17	7	651	969	567
745 1630 1230	25A	Right	334	291	164	386	342	202		46%	23	123	29		36%	5	12	11		36%	8	13	14	36	148	54	422	490	256
	SW	Left	89	137	142	107	156	164			---	---	---			---	---	---			---	---	---	0	0	0	107	156	164
	25A	Thr	725	722	457	817	812	529	5%		9	5	4	5%		1	1	1	5%		2	2	2	12	8	8	829	820	537
Hourly Peak Hour	SB	Left	119	208	109	151	245	135	46%		85	48	39	36%		9	8	9	36%		12	13	17	105	69	66	256	314	201
Factors (PHFs)	Road	Right	93	158	159	107	184	184			---	---	---			---	---	---			---	---	---	0	0	0	107	184	184
0.95 0.97 0.94	Intersection																										2,373	2,932	1,908
Lake Avenue and NYS Route 25A																													
	NB	Left	0	0	1	0	0	1			---	---	---			---	---	---			---	---	---	0	0	0	0	0	1
	NB	Right	179	269	195	203	303	226	5%		9	5	4	5%		1	1	1	5%		2	2	2	12	8	8	215	311	234
Peak hours start at	EB	Thr	777	920	509	887	1,037	594	16%		29	17	14	20%		5	4	5	20%		7	7	10	41	28	28	928	1,065	622
745 1630 1230		Right	0	9	6	0	10	7			---	---	---			---	---	---			---	---	---	0	0	0	0	10	7
	WB	Left	172	203	162	193	230	189		5%	2	13	3		5%	1	2	2		5%	1	2	2	4	17	7	197	247	196
Hourly Peak Hour		Thr	758	771	446	856	880	523		16%	8	43	10		20%	3	7	6		20%	5	7	8	15	56	24	871	936	547
0.98 0.92 0.94	Intersection																												
Moriches Road and NYS Route 25A																													
Peak hours start at	NB	Left	160	153	162	180	172	187			---	---	---			---	---	---			---	---	---	0	0	0	180	172	187
745 1645 1200		Thr	69	118	120	78	133	139			---	---	---			---	---	---			---	---	---	0	0	0	78	133	139
	SB	Left	56	85	26	63	96	30			---	---	---			---	---	---			---	---	---	0	0	0	63	96	30
		Thr	103	116	106	116	130	123			---	---	---			---	---	---			---	---	---	0	0	0	116	130	123
		Right	11	7	15	12	8	17			---	---	---			---	---	---			---	---	---	0	0	0	12	8	17
	EB	Left	11	20	10	12	22	12			---	---	---			---	---	---			---	---	---	0	0	0	12	22	12
		Thr	729	837	465	827	943	543	16%		29	17	14	20%		5	4	5	20%		7	7	10	41	28	28	868	971	571
		Right	88	165	129	99	185	149			---	---	---			---	---	---			---	---	---	0	0	0	99	185	149
Hourly Peak Hour	WB	Thr	725	739	417	817	839	489		16%	8	43	10		20%	3	7	6		20%	5	7	8	15	56	24	832	895	513
Factors (PHFs)		Right	31	46	21	35	52	24			---	---	---			---	---	---			---	---	---	0	0	0	35	52	24
0.95 0.95 0.99	Intersection																												
Lake Avenue and Moriches Road																													
	NB	Left	87	150	111	98	169	128			---	---	---			---	---	---			---	---	---	0	0	0	98	169	128
Peak hours start at		Thr	157	212	148	178	239	172	5%		9	5	4	5%		1	1	1	5%		2	2	2	12	8	8	190	247	180
800 1630 1145		Right	11	17	15	12	19	17			---	---	---			---	---	---			---	---	---	0	0	0	12	19	17
	SB	Left	13	30	32	15	34	37			---	---	---			---	---	---			---	---	---	0	0	0	15	34	37
		Thr	165	178	142	185	202	166		5%	2	13	3		5%	1	2	2		5%	1	2	2	4	17	7	189	219	173
		Right	0	0	1	0	0	1			---	---	---			---	---	---			---	---	---	0	0	0	0	0	1
	EB	Left	1	0	0	1	0	0			---	---	---			---	---	---			---	---	---	0	0	0	1	0	0
		Thr	78	126	95	88	142	110			---	---	---			---	---	---			---	---	---	0	0	0	88	142	110
		Right	135	156	119	152	175	138			---	---	---			---	---	---			---	---	---	0	0	0	152	175	138
Hourly Peak Hour	WB	Left	19	16	23	21	18	27			---	---	---			---	---	---			---	---	---	0	0	0	21	18	27
Factors (PHFs)		Thr	133	130	152	149	146	176			---	---	---			---	---	---			---	---	---	0	0	0	149	146	176
0.81 0.98 0.90		Right	27	59	45	30	66	52			---	---	---			---	---	---			---	---	---	0	0	0	30	66	52

Trip Distribution & Assignment (If no Railroad Crossing)
Growth Factor: 1.1% for 3 years, to 2020
3-year multiplier: 1.033

Passby Percentages
0% Weekday
0% Weekend

Existing volumes x 1.033 to show 3 years of ambient growth

	130,000 s.f. Medical Office			220 Assisted Living units			150-room Hotel, Restaurant			Total Site-wide		
	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT
Enter	184	104	85	25	21	26	33	37	48	242	162	159
Exit	49	267	64	15	33	30	23	35	38	87	336	132
Total	233	371	149	40	54	56	56	72	86	329	497	291

AM PHF / PM PHF / SAT PHF	Dir.	Mvmt	2017 Existing Volumes AM	PM	SAT	2020 No Build Volumes AM	PM	SAT	Distribution %Enter	%Exit	Medical Office Traffic AM	PM	SAT	Distribution %Enter	%Exit	Assisted Living Traffic AM	PM	SAT	Distribution %Enter	%Exit	Hotel Traffic AM	PM	SAT	Total Site Traffic AM	PM	SAT	2020 Build Volumes AM	PM	SAT
Moriches Road and Mills Pond Road-Evon Lane																													
	NB	Left	1	12	10	1	13	12			---	---	---			---	---	---			---	---	---	0	0	0	1	13	12
Peak hours start at		Thr	116	210	179	130	236	207			---	---	---			---	---	---			---	---	---	0	0	0	130	236	207
800 1645 1145		Right	104	188	135	131	215	164	28%		51	29	24	34%		9	7	9	34%		11	13	16	71	49	49	202	264	213
	SB	Left	7	7	7	8	8	8			---	---	---			---	---	---			---	---	---	0	0	0	8	8	8
		Thr	106	161	173	119	181	200			---	---	---			---	---	---			---	---	---	0	0	0	119	181	200
		Right	1	1	2	1	1	2			---	---	---			---	---	---			---	---	---	0	0	0	1	1	2
	EB	Left	1	1	2	1	1	2			---	---	---			---	---	---			---	---	---	0	0	0	1	1	2
		Thr	7	25	21	8	28	24			---	---	---			---	---	---			---	---	---	0	0	0	8	28	24
		Right	4	6	8	4	7	9			---	---	---			---	---	---			---	---	---	0	0	0	4	7	9
Hourly Peak Hour	WB	Left	94	162	155	109	195	190		28%	14	75	18		34%	5	11	10		34%	8	12	13	27	98	41	136	293	231
Factors (PHFs)		Thr	20	29	12	22	33	14			---	---	---			---	---	---			---	---	---	0	0	0	22	33	14
0.94 0.95 0.93		Right	14	8	7	16	9	8			---	---	---			---	---	---			---	---	---	0	0	0	16	9	8
	Intersection																												
Moriches Road and Woodlawn Avenue																													
Peak hours start at	NB	Left	190	287	277	214	323	320			---	---	---			---	---	---			---	---	---	0	0	0	214	323	320
800 1615 1200		Thr	229	379	337	271	430	398	28%		51	29	24	34%		9	7	9	34%		11	13	16	71	49	49	342	479	447
	SB	Thr	197	368	362	224	427	430		28%	14	75	18		34%	5	11	10		34%	8	12	13	27	98	41	251	525	471
		Right	37	45	34	42	51	39			---	---	---			---	---	---			---	---	---	0	0	0	42	51	39
	EB	Left	38	68	33	43	76	38			---	---	---			---	---	---			---	---	---	0	0	0	43	76	38
		Thr	1	0	0	1	0	0			---	---	---			---	---	---			---	---	---	0	0	0	1	0	0
		Right	209	370	360	235	416	416			---	---	---			---	---	---			---	---	---	0	0	0	235	416	416
	WB	Left	0	0	0	0	0	0			---	---	---			---	---	---			---	---	---	0	0	0	0	0	0
Hourly Peak Hour		Thr	0	0	0	0	0	0			---	---	---			---	---	---			---	---	---	0	0	0	0	0	0
Factors (PHFs)		Right	0	1	0	0	1	0			---	---	---			---	---	---			---	---	---	0	0	0	0	1	0
0.89 0.95 0.98	Intersection																												
Moriches Road and NYS Route 347																													
	NB	Left	3	95	133	3	107	154			---	---	---			---	---	---			---	---	---	0	0	0	3	107	154
Peak hours start at		Thr	25	140	133	30	157	155	4%		7	4	3	4%		1	1	1	4%		1	1	2	10	6	6	40	163	161
730 1700 1230		Right	9	99	143	10	111	165			---	---	---			---	---	---			---	---	---	0	0	0	10	111	165
	SB	Left	227	279	275	256	320	323		12%	6	32	8		15%	2	5	5		15%	3	5	6	12	42	18	268	362	341
		Thr	51	188	207	57	213	240		4%	2	11	3		4%	1	1	1		4%	1	1	2	3	13	5	60	226	245
		Right	63	110	115	72	130	138		12%	6	32	8		15%	2	5	5		15%	3	5	6	12	42	18	84	172	156
	EB	Left	77	141	187	93	160	220	12%		22	12	10	15%		4	3	4	15%		5	6	7	31	21	21	124	181	241
		Thr	1,292	1,494	1,149	1,477	1,683	1,329			---	---	---			---	---	---			---	---	---	0	0	0	1,477	1,683	1,329
		Right	18	91	149	20	102	172			---	---	---			---	---	---			---	---	---	0	0	0	20	102	172
	WB	Left	19	154	309	21	173	357			---	---	---			---	---	---			---	---	---	0	0	0	21	173	357
Hourly Peak Hour		Thr	1,952	1,510	1,156	2,202	1,720	1,337			---	---	---			---	---	---			---	---	---	0	0	0	2,202	1,720	1,337
Factors (PHFs)		Right	277	270	270	317	305	316	12%		22	12	10	15%		4	3	4	15%		5	6	7	31	21	21	348	326	337
0.97 0.95 0.93	Intersection																												
Main Street and NYS Route 25A																													
Peak hours start at	NB	Thr	149	280	218	168	318	252			---	---	---			---	---	---			---	---	---	0	0	0	168	318	252
800 1630 1230		Right	538	738	417	606	834	484		5%	2	13	3		5%	1	2	2		5%	1	2	2	4	17	7	610	851	491
	SB	Left	60	81	79	67	91	91			---	---	---			---	---	---			---	---	---	0	0	0	67	91	91
		Thr	227	198	223	258	224	258			---	---	---			---	---	---			---	---	---	0	0	0	258	224	258
Hourly Peak Hour	WB	Left	578	646	391	655	727	453	5%		9	5	4	5%		1	1	1	5%		2	2	2	12	8	8	667	735	461
Factors (PHFs)		Right	48	75	98	54	84	113			---	---	---			---	---	---			---	---	---	0	0	0	54	84	113
0.95 0.96 0.97	Intersection																												
Stony Brook Road and South Drive																													
Peak hours start at	NB	Thr	263	202	212	351	237	254	31%		57	32	26	36%		9	8	9	36%		12	13	17	78	53	53	429	290	307
800 1645 1230		Right	648	317	159	728	356	184			---	---	---			---	---	---			---	---	---	0	0	0	728	356	184
	SB	Left	299	145	56	339	170	65		15%	7	40	10			---	---	---			---	---	---	7	40	10	346	210	75
		Thr	147	348	264	181	442	317		31%	15	83	20		36%	5	12	11		36%	8	13	14	29	108	44	210	550	361
Hourly Peak Hour	WB	Left	74	608	148	83	683	171			---	---	---			---	---	---			---	---	---	0	0	0	83	683	171
Factors (PHFs)		Right	82	218	46	100	246	53	15%		28	16	13			---	---	---			---	---	---	28	16	13	128	262	66
0.92 0.96 0.95	Intersection																												

Trip Distribution & Assignment (If no Railroad Crossing)
Growth Factor: 1.1% for 3 years, to 2020
3-year multiplier: 1.033

Passby Percentages
0% Weekday
0% Weekend

Existing volumes x 1.033 to show 3 years of ambient growth

	130,000 s.f. Medical Office			220 Assisted Living units			150-room Hotel, Restaurant			Total Site-wide		
	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT
Enter	184	104	85	25	21	26	33	37	48	242	162	159
Exit	49	267	64	15	33	30	23	35	38	87	336	132
Total	233	371	149	40	54	56	56	72	86	329	497	291

AM PHF	PM PHF	SAT PHF	Dir.	Mvmt	2017 Existing Volumes AM	PM	SAT	2020 No Build Volumes AM	PM	SAT	Distribution %Enter	%Exit	Medical Office Traffic AM	PM	SAT	Distribution %Enter	%Exit	Assisted Living Traffic AM	PM	SAT	Distribution %Enter	%Exit	Hotel Traffic AM	PM	SAT	Total Site Traffic AM	PM	SAT	2020 Build Volumes AM	PM	SAT
Stony Brook Road and Oxhead Road																															
Peak hours start at			NB	Thr	759	429	282	887	488	330	15%		28	16	13	15%		4	3	4	15%		5	6	7	36	24	24	923	512	354
800	1700	1230		Right	32	125	75	36	140	87			---	---	---			---	---	---			---	---	---	0	0	0	36	140	87
			SB	Left	81	181	105	97	223	128		16%	8	43	10		21%	3	7	6		21%	5	7	8	16	57	25	113	280	153
				Thr	156	748	312	186	873	366		15%	7	40	10		15%	2	5	5		15%	3	5	6	13	50	20	199	923	386
Hourly Peak Hour			WB	Left	37	101	61	42	114	71			---	---	---			---	---	---			---	---	---	0	0	0	42	114	71
Factors (PHFs)				Right	159	80	95	200	94	115	16%		29	17	14	21%		5	4	5	21%		7	8	10	42	29	29	242	123	144
0.92	0.95	0.93	Intersection																												
Stony Brook Road and Hallock Road																															
Peak hours start at			NB	Left	13	41	23	15	46	27			---	---	---			---	---	---			---	---	---	0	0	0	15	46	27
800	1700	1300		Thr	670	419	279	787	477	327	15%		28	16	13	15%		4	3	4	15%		5	6	7	36	24	24	823	501	351
			SB	Thr	255	719	318	298	840	373		15%	7	40	10		15%	2	5	5		15%	3	5	6	13	50	20	311	890	393
				Right	28	183	89	31	206	103			---	---	---			---	---	---			---	---	---	0	0	0	31	206	103
Hourly Peak Hour			EB	Left	102	157	110	115	176	127			---	---	---			---	---	---			---	---	---	0	0	0	115	176	127
Factors (PHFs)				Right	12	34	28	13	38	32			---	---	---			---	---	---			---	---	---	0	0	0	13	38	32
0.97	0.99	0.98	Intersection																												
Stony Brook Road and NYS Route 347																															
			NB	Left	57	75	276	64	84	319			---	---	---			---	---	---			---	---	---	0	0	0	64	84	319
Peak hours start at				Thr	180	127	97	207	144	113	5%		9	5	4	5%		1	1	1	5%		2	2	2	12	8	8	219	152	121
730	1700	1300		Right	120	77	215	135	87	249			---	---	---			---	---	---			---	---	---	0	0	0	135	87	249
			SB	Left	149	252	90	168	287	107		10%	5	27	6		10%	1	3	3		10%	2	4	4	9	34	13	177	321	120
				Thr	72	189	102	82	217	120		5%	2	13	3		5%	1	2	2		5%	1	2	2	4	17	7	86	234	127
				Right	118	213	61	141	262	71			---	---	---			---	---	---			---	---	---	0	0	0	141	262	71
			EB	Left	386	339	351	459	385	406			---	---	---			---	---	---			---	---	---	0	0	0	459	385	406
				Thr	1,249	1,853	1,624	1,405	2,089	1,883		12%	6	32	8		15%	2	5	5		15%	3	5	6	12	42	18	1,417	2,131	1,901
				Right	29	84	111	33	94	128			---	---	---			---	---	---			---	---	---	0	0	0	33	94	128
Hourly Peak Hour			WB	Left	76	108	92	85	121	106			---	---	---			---	---	---			---	---	---	0	0	0	85	121	106
Factors (PHFs)				Thr	2,142	2,025	2,052	2,413	2,278	2,377	12%		22	12	10	15%		4	3	4	15%		5	6	7	31	21	21	2,444	2,299	2,398
0.97	0.98	0.97		Right	104	118	111	121	134	130	10%		18	10	8	10%		3	2	3	10%		3	4	5	24	16	16	145	150	146
Mills Pond Road and Site Access 1																															
Peak hours start at			NB	Thr	102	141	108	120	183	129	18%	21%	43	75	29	24%	25%	10	13	14	24%	25%	14	18	21	67	106	63	187	289	192
900	1545	1215		Right	0	1	10	0	1	14			---	---	---			---	---	---			---	---	---	0	0	0	0	1	14
			SB	Left	1	0	21	1	0	29			---	---	---			---	---	---			---	---	---	0	0	0	1	0	29
				Thr	108	188	141	147	218	170	51%		94	53	43	41%		10	9	11	41%		13	15	20	118	77	74	265	295	244
Hourly Peak Hour			WB	Left	0	2	1	0	2	9			---	---	---			---	---	---			---	---	---	0	0	0	0	2	9
Factors (PHFs)				Right	4	1	3	4	1	21			---	---	---			---	---	---			---	---	---	0	0	0	4	1	21
0.81	0.85	0.77	Intersection																												
Mills Pond Road and Site Access 2																															
Peak hours start at			NB	Thr	76	127	95	85	143	114	18%		33	19	15	24%		6	5	6	24%		8	9	12	47	33	33	132	176	147
900	1600	1215		Right	34	40	12	48	44	16	10%		18	10	8	10%		3	2	3	10%		3	4	5	24	16	16	72	60	32
			SB	Left	49	31	17	75	38	24	51%		94	53	43	41%		10	9	11	41%		13	15	20	118	77	74	193	115	98
				Thr	52	109	127	58	123	155			---	---	---			---	---	---			---	---	---	0	0	0	58	123	155
Hourly Peak Hour			WB	Left	46	44	8	49	57	11		28%	14	75	18		34%	5	11	10		34%	8	12	13	27	98	41	75	155	52
Factors (PHFs)				Right	34	62	23	39	87	27		21%	10	56	13		25%	4	8	8		25%	6	9	9	20	73	30	59	161	57
0.92	0.91	0.89	Intersection																												
NYS Route 25A and Site Access																															
			NB	Right	0	0	0	0	0	0		51%	25	136	33		41%	6	14	12		41%	10	14	15	41	164	61	41	164	61
			EB	Thr	922	1,141	652	1,047	1,299	768			---	---	---			---	---	---			---	---	---	0	0	0	1,047	1,299	768
				Right	0	0	0	0	0	0	39%		72	41	33	49%		12	10	13	49%		16	18	24	100	69	69	100	69	69
			WB	Thr	846	917	571	970	1,043	670	51%		94	53	43	41%		10	9	11	41%		13	15	20	118	77	74	1,088	1,120	744
Development Drive (R&D Park) and Stony Brook Road																															
Peak hours start at			NB	Left	120	19		183	29	0			---	---	---			---	---	---			---	---	---	0	0		183	29	
800	1615	1100		Thr	200	399		229	446	4	46%		85	48	39	36%		9	8	9	36%		12	13	17	105	69		334	515	
			SB	Thr	431	368		480	409	0		46%	23	123	29		36%	5	12	11		36%	8	13	14	36	148		516	557	
				Right	36	16		56	26	5			---	---	---			---	---	---			---	---	---	0	0		56	26	
Hourly Peak Hour			EB	Left	10	33		16	50	0			---	---	---			---	---	---			---	---	---	0	0		16	50	
Factors (PHFs)				Right	30	73		49	126	0			---	---	---			---	---	---			---	---	---	0	0		49	126	
0.93	0.91	--	Intersection																												

CAMERON ENGINEERING
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303 Tarrytown Road, 1st Floor, White Plains, NY 10603 T: (914) 721-8300
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Distribution of Site-generated Traffic - Office
Figure No. 6-10

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303 Tarrytown Road, 1st Floor, White Plains, NY 10603 T: (914) 721-8300
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Distribution of Site-generated Traffic - Assisted Living, Hotel

Figure No. 6-11

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AM, PM, and Saturday Peak Hour Generated Traffic

Figure No. 6-12

Weekday AM Peak Hour Build Volumes

Figure No. 6-13

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Weekday PM Peak Hour Build Volumes
Figure No. 6-14

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Weekday Saturday Peak Hour Build Volumes

Figure No. 6-15

7. Assessing Impact: No Build vs. Build Scenarios

The next step of this report was to determine the Build condition levels of service. Any traffic impacts are gauged by the genuine differences between the No Build and Build levels of service. Table 7-1 at the end of this section contains the future level of service summaries. The table is summarized below, and the worksheets are provided in Appendix G. As some intersections require mitigation, the mitigation proposals are elaborated in the "Mitigation Summary" in Section 8 beginning on page 8-1.

7.1 Route 25A at Mills Pond Road

The proposed traffic signal will introduce periodic stops to Route 25A movements which currently are free flowing. Nonetheless, the Build Route 25A delays are acceptable for peak hour periods, and the signal should make it safer for the side street and minor movements. The westbound left turn will change from LOS B to LOS D during the afternoon. In the AM peak hour, it will remain at LOS B, and during the Saturday peak hour, it will remain at LOS A. Eastbound Route 25A will operate at LOS A, B, or D (whereas it currently has little to no delay). These changes are reasonable, and LOS D is a reasonable expected condition during peak hours. Additionally, these changes will be more than offset by the very significant benefits to Mills Pond Road. The proposed signal will improve the northbound left turn by one to three LOS grades. Its No Build delay is LOS F during all three periods, and its Build delay will be in LOS C, D, or E. The largest benefit will be during the PM peak hour, with 89% less delay than under existing conditions. Aside from the new signal and restriping for turn lanes, no further mitigation is necessary.

Based on a preliminary request made by NYSDOT at a meeting held in October 2017, Cameron Engineering also examined an alternative improvement, vis-à-vis the potential to reconstruct the intersection into a roundabout. The outcome is that a roundabout is not feasible at this location. A roundabout needs significantly more horizontal space than a three-leg intersection, and it would encroach on the regulated 100-foot buffer zone of a mapped State-regulated freshwater wetland. This wetland (designated "SJ-5" on the New York State Department of Environmental Conservation mapper) is on the southwest corner of the intersection (see Figure 7-1 on the next page). Areas within 100 feet of a mapped wetland are protected under the State Freshwater Wetlands Act.

Since a traffic signal will address safety and traffic delay concerns, a roundabout was not analyzed at this location, given the proximity to a mapped wetland.

Figure 7-1: State Regulated Freshwater Wetland near 25A-Mills Pond Road

7.2 Route 25A at Stony Brook Road

The proposed subdivision will impact the westbound Stony Brook Road left turn onto Route 25A. This maneuver changes from LOS E to F during the Saturday peak hour, and during the weekday peak hours, its LOS F intensifies with up to a roughly 150-second delay increase. Other lane movements will range from LOS B to E, similar or the same as the No Build condition LOS.

Cameron Engineering performed a signal warrant study of this intersection (see Appendix D) to mitigate the increased delay to the westbound left turn movement, and found that current volumes justify installing a traffic signal. As shown in the table, the new traffic signal and slight lane reconfiguration (see Section 8.2 starting on page 8-1) would vastly improve Stony Brook Road compared to its No Build operation. These mitigation measures will result in an improvement of the westbound left turn from LOS F to LOS C during the AM and Saturday peak hours, and will improve the PM peak hour's westbound left turn LOS from LOS F to LOS E and reduce the No Build delay by approximately 230 seconds. Highway Capacity Manual (HCM 6th Edition) methodology removes the Stony Brook Road right turn (onto northbound Route 25A) from the delay calculation. The Route 25A maneuvers will range from LOS A to E, which is common and reasonable for peak hour conditions on arterial roads.

A signal will sufficiently accommodate subdivision traffic and improve existing conditions. However, at a meeting on October 26, 2017, NYSDOT indicated they are considering reconstructing this intersection into a roundabout and has begun an alternatives analysis (including preliminary roundabout design) to address known existing concerns (e.g. sight lines, safety, and delay). This NYSDOT analysis is also referenced in the 2017 *Route 25A - Three Village Area: Visioning Report for the Hamlets of Stony Brook, Setauket and East Setauket* prepared for the Town of Brookhaven[11]. Pages 28-29 of the Town's *Visioning Report* (screenshots provided below) describe the NYSDOT "recent" study that determined a traffic signal is appropriate, and that a roundabout is a second option. The relevant sections of the *Visioning Report* are provided in Appendix H.

> NYSDOT recently studied Route 25A at Stony Brook Road and determined that a traffic signal was appropriate. Participants also supported studying the potential for a modern roundabout, both at Nicholls Road and Stony Brook Road, which could be more desirable to a signalized intersection (see Figure 5). Roundabouts have

(Continued on the next page)

[11] The full *Visioning Report* is posted on the Town of Brookhaven website:
https://www.brookhavenny.gov/Forms?Command=Core_Download&EntryId=11103

[illegible] been accepted in the United States due to two main factors.

1. Increased capacity and reduced vehicle delay
A high degree of capacity and fluidity can be achieved by the modern roundabout. When greater capacity is required, relatively simple improvements can be implemented such as widening the entries to provide more than one entry lane, and widening the circulatory roadway.

2. Improved safety
Roundabout design has consistently proven to be superior in safety to cross intersections. Reduced speeds alone make impacts less likely and less severe when they do occur. Driver error is less likely because the driver who enters the roundabout must be alert to only one traffic movement – he looks left for an acceptable gap to enter into the flow. By contrast, a driver at a four-way intersection has to deal with two or three different movements. In a roundabout, no driver can run a red light; therefore right-angle collisions are not possible. The presence of the center island interrupts an otherwise straight path forcing speed reduction and heightened awareness in the roundabout. It also is worth noting that reduced delays at roundabouts compared to signalized intersections have the effect of decreasing the level of frustration and aggressiveness of drivers.

[illegible]

Reconfiguring this location into a standard signalized intersection can be done within the confines of the existing pavement. Building a roundabout would almost certainly encroach upon private property regardless of the number of circulating lanes.

For traffic analysis purposes, during the critical weekday AM and PM peak hour periods, the roundabout would in fact require two circulating lanes and two approach lanes in each direction to avoid "LOS F" delays above 90 seconds per vehicle.

A two-lane roundabout would yield all lane groups operating at LOS A, B, or C.

Either solution would greatly enhance safety (signals and roundabouts both tend to reduce sight line concerns, left turn collisions, and right-angle collisions), and either solution would address existing and projected travel delays for drivers approaching on Stony Brook Road. Either solution would also introduce a stop or yield condition on Route 25A, with acceptable delays, in that this scenario offsets excessively high No Build delays on Stony Brook Road, such that the overall intersection would operate much better with a signal or with an appropriately-sized roundabout. Gyrodyne LLC acknowledges that NYSDOT will choose the preferred solution and may opt for a roundabout. It is noted that a roundabout would be a far more expensive solution, with similar operation to a signal.

7.3 Route 347 at Moriches Road/Smith Haven Mall Driveway

There are several one-grade LOS changes during the studied peak hours, though many of these changes correspond to relatively small delay increases up to 6 seconds. However, the eastbound left turn will change from LOS E to LOS F during the PM peak hour, with increased delays up to 12 seconds. Signal timing changes would be adequate to completely address the greatest increases, with smaller and more manageable changes to some other movements. NYSDOT, in its letter dated July 3, 2018, requires a second eastbound left turn lane, so this report also considers a 75-foot eastbound left turn bay added within the existing median.

With this mitigation in place, the only movements to present with a LOS change have No Build operation very close to the next LOS grade to begin with, where a delay could increase by as little as ½ second and still change the LOS grade.

7.4 Stony Brook Road at South Drive

Nearly every approach at this intersection will maintain its No Build level of service and will continue to operate at acceptable LOS grades. The westbound right turn approach will change from LOS A to LOS B due to an imperceptible 0.1-second increase in delay during the Saturday peak hour. The exception is that the southbound left turn approach will noticeably worsen within LOS F during the AM and PM peak hours, with up to a 182-second increase in delay during the PM peak hour.

These changes are addressed when incorporating the mitigation measures discussed later in this report, including lane reconfiguration within the existing pavement width, plus signal phasing changes (see Section 8.4 on page 8-3).

With mitigation in place, every lane group will operate at LOS C or better, and any delay increase will only result in LOS B or LOS C, which represent very acceptable peak hour traffic flow. Of particular note, the southbound approach that will otherwise operate at LOS F during weekday AM and PM peak hours will improve to LOS C, with up to 256 fewer seconds of delay in the morning.

7.5 Stony Brook Road at Oxhead Road

Nearly every approach at this intersection will maintain its No Build level of service and will continue to operate at acceptable LOS grades, with two exceptions. During the AM peak hour, the westbound approach will change from LOS D to LOS E due to a 29-second increase in delay and the southbound approach will change from LOS B to LOS D due to a 28-second increase in delay. Additionally, the afternoon southbound approach will worsen within LOS F. Saturday delay changes are negligible (2.2 seconds or less).

The increases in delay will be mitigated and the No Build southbound delay will be vastly improved upon by the mitigation measures discussed later in this report, including lane reconfiguration within the existing pavement width, plus signal phasing changes (see Section 8.5 on page 8-3). The change will effect some LOS changes to other lane groups, but these minor impacts are reasonable in light of a vast improvement to the southbound approach during the afternoon, whose 264-second No Build delay presents the most challenged lane group at this intersection. This approach will improve to LOS B and will have less than 15 seconds of PM peak hour delay once mitigation is in place. Therefore, the overall high-level result is a net benefit.

7.6 Route 347 at Stony Brook Road

There is a one-grade LOS change during the Saturday peak hour, though the change corresponds to a relatively small delay increases less than 4 seconds.

Nearly every approach at this intersection will maintain its No Build level of service and will experience increases in delay of less than 9.1 seconds – an amount of time that is imperceptible to the typical driver. The southbound left turn lane will experience a significant increase in delay of roughly 50 seconds during the PM peak hour. This delay can be offset and reduced to 20 seconds with PM period signal timing changes, which balances the effect of subdivision traffic across all four approaches.

Based on the October 2017 meeting with NYSDOT, signal timing changes may not be achievable. If this is the case, an alternate improvement would entail a minor widening of northbound Stony Brook Road to provide a short northbound right turn lane. This would allow the current right turn lane to be designated as a second through lane (there are two receiving lanes north of the intersection), allowing the north-south signal time to be modified, and allowing for right turn arrow overlaps (when right turning traffic proceeds during the left turn arrow phase on the cross street).

With this alternate change in place, three of the four right turn lanes would have improved LOS grades. Eastbound and westbound through movement delays would increase slightly. Northbound left turns would increase delay by less than 4 seconds, while through-right delay would decrease by several seconds. Southbound through vehicles would increase delay by 5 seconds (no change in LOS), but the southbound left turn delay would be reduced by 16 seconds.

7.7 Remaining Study Intersections (No Mitigation)

Route 25A at Lake Avenue

Most lane groups will continue to operate at LOS A, B, or C during the AM and Saturday peak hours, with small delay changes at or below 2.6 seconds. The LOS changes for westbound left turns during the Saturday and PM peak hours, respectively, are due to imperceptible increases in delay of 0.2 to 1.0 seconds. No mitigation is necessary.

Route 25A at Moriches Road

Every lane group will continue to operate at LOS A, B, or C during the AM and Saturday peak hours, with small delay changes at or below 2 seconds. Most lane groups during the PM peak hour maintain their No Build LOS, with two lane groups (left turns from northbound-southbound Moriches Road) go from LOS C to D, and one lane group (northeast Route 25A left turns) go from LOS B to C. No mitigation is necessary.

Moriches Road at Lake Avenue

Every approach at this intersection will maintain its No Build level of service and will continue to operate at LOS A or B, which denotes excellent traffic flow through the intersection. The largest delay increase will be just 0.2 seconds per vehicle, which is too small for drivers to notice. The signal is capable of handling any temporary traffic fluctuations, and it will not be necessary to provide mitigation.

Moriches Road at Mills Pond Road and Evon Lane

This intersection will experience several one-grade LOS changes during peak hours. These changes will result in LOS B, C, and D operation, and correspond to relatively minor increases in delay (all are below 10 seconds). In the AM peak hour, the northbound approach changes from LOS A to B with minor delay increases. In the PM peak hour, the eastbound changes from LOS A to B, and the northbound approach changes from LOS C to D. During the Saturday peak hour, the northbound approach and westbound left turn change from LOS B to C. These changes do not require mitigation measures.

Moriches Road at Woodlawn Avenue

All but one approach will remain at the No Build LOS grades during the Build peak hours. The exception is the eastbound right turn which will change from LOS C to LOS D during the PM peak. These are reasonable peak hour conditions for the area and do not indicate that mitigation is required.

The existing stop sign for the channelized southbound right turn lane is posted in advance of the stop line. For sight line reasons, it is recommended to shift the stop sign forward so that it is clearly visible to drivers positioned at the stop line.

Route 25A at Main Street

Every approach at this intersection will maintain its No Build level of service and will continue to operate at acceptable LOS grades. The largest delay increase will be just 2.8 seconds per vehicle, which is too small for drivers to notice. Mitigation is not required.

Stony Brook Road at Hallock Road

Nearly every approach at this intersection will maintain its No Build level of service and will continue to operate at acceptable LOS grades. The PM peak hour eastbound left turn will change from LOS C to D because its No Build delay is just 0.1 seconds from the LOS C-D threshold to begin with. No mitigation will be required at this intersection.

Stony Brook Road and Development Drive

This intersection will continue to operate well during weekday peak hours. The only LOS changes are to the AM peak hour eastbound (exiting) left turn and to the PM peak hour eastbound (exiting) left and right turns. Build delays will be under 40 seconds per vehicle, which is common and acceptable for peak hour conditions. Nothing further is needed to accommodate site traffic.

7.8 Site Driveways

Mills Pond Road Site Access 1

Upon request by the Town, Cameron Engineering did a cursory signal warrant review of the existing Mills Pond Road driveways and the relocated Route 25A driveway. The analysis, in Appendix F, concludes that none of the driveways (existing or proposed) warrant signalization. The driveway will operate well: the entering left turn will operate at LOS A and all exiting movements will operate at either LOS A (AM peak) or LOS B (PM and Saturday peak). Nothing further is needed to accommodate site traffic.

Mills Pond Road Site Access 2

The driveway will operate well: the entering left turn will operate at LOS A and all exiting movements will operate at LOS B (Saturday peak) or LOS C (AM and PM peak), with the greatest approach delay less than 25 seconds. Nothing further is needed to accommodate site traffic.

NYS Route 25A Site Access

The driveway will operate well: the exiting right turn will operate at LOS C during the AM and Saturday peak hours, and LOS E during the PM peak hour. The entering right turn will have no measurable delay (LOS A). These LOS grades are typical for roadways adjacent to a major collector such as NYS Route 25A. The highest movement delay is less than 45 seconds. Nothing further is needed to accommodate site traffic.

Justification for this Route 25A Driveway

As mentioned above, the Gyrodyne property has a curb cut on Route 25A near the eastern end of the frontage that will be designated for access to the on-site STP as part of the subdivision plan.

This application includes providing an enhanced right-turns-only driveway near the midpoint of the site frontage on Route 25A. This proposed driveway is on a straighter section of Route 25A than the existing curb cut, which optimizes sight lines for site-related drivers to see oncoming traffic and to be seen. This midpoint location is also better positioned relative to the rest of the property.

If there was no Route 25A access, all traffic would have to utilize the Mills Pond Road driveways, which could incur on-site queues and create backups within the property, in addition to routing more traffic through the Route 25A-Mills Pond Road intersection. The Route 25A driveway relocation will better serve the property and will disperse site traffic to reduce potential impacts at the nearest intersections.

It is necessary to incorporate a relocated Route 25A driveway for traffic flow and circulation.

Level of Service for Signalized Intersection - NYS Route 25A and Mills Pond Road

AM Peak Hour

Movement	2017 Existing Seasonally Adjusted Volumes			2020 No Build Volumes			2020 Build - Signalized		
	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
Northbound Left	75.9	0.20	F	102.1	0.29	F	40.1	0.26	D
Right	21.9	0.30	C	24.1	0.34	C	47.3	0.70	D
Eastbound Thru	Not applicable in unsignalized condition			Not applicable in unsignalized condition			17.1	0.83	B
Right							0.0	0.00	A
Westbound Left	10.6	0.06	B	11.0	0.09	B	18.0	0.58	B
Through							6.3	0.65	A
INTERSECTION	*1.6*		*A*	*2.0*		*A*	*15.0*		*B*

PM Peak Hour

Movement	2017 Delay	2017 v/c Ratio	2017 LOS	2020 No Build Delay	2020 No Build v/c Ratio	2020 No Build LOS	2020 Build Delay	2020 Build v/c Ratio	2020 Build LOS
Northbound Left	613.4	1.58	F	1142.0	2.63	F	67.4	0.79	E
Right	46.1	0.66	E	65.1	0.80	F	53.0	0.78	D
Eastbound Thru	Not applicable in unsignalized condition			Not applicable in unsignalized condition			41.2	0.99	D
Right							6.1	0.06	A
Westbound Left	12.5	0.18	B	13.0	0.20	B	63.1	0.87	E
Through							7.0	0.66	A
INTERSECTION	*13.7*		*B*	*28.4*		*D*	*32.0*		*C*

Saturday Peak Hour

Movement	2017 Delay	2017 v/c Ratio	2017 LOS	2020 No Build Delay	2020 No Build v/c Ratio	2020 No Build LOS	2020 Build Delay	2020 Build v/c Ratio	2020 Build LOS
Northbound Left	45.9	0.25	E	59.7	0.37	F	33.1	0.56	C
Right	14.9	0.21	B	15.9	0.26	C	30.0	0.64	C
Eastbound Thru	Not applicable in unsignalized condition			Not applicable in unsignalized condition			12.0	0.66	B
Right							5.8	0.06	A
Westbound Left	9.6	0.14	A	9.9	0.16	A	7.7	0.45	A
Through							3.8	0.39	A
INTERSECTION	*2.7*		*A*	*3.5*		*A*	*11.1*		*B*

Level of Service for Unsignalized Intersection - NYS Route 25A at Stony Brook Road

AM Peak Hour

Movement	2017 Existing Seasonally Adjusted Volumes			2020 No Build Volumes			2020 Build Volumes			2020 Mitigated (Signal, Reconfigure Intersection)			2020 Mitigated (2-lane Roundabout)		
	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
Stony Brook Rd Left	140.2	1.00	F	228.4	1.25	F	106.5	1.03	F	25.8	0.79	C	10.3	0.39	B
Stony Brook Rd Right	15.1	0.23	C	15.7	0.25	C	15.6	0.25	C				6.2	0.15	A
North/East 25A Thru										17.2	0.86	B	9.9	0.58	A
North/East 25A Right													6.2	0.35	A
South/West 25A Left	9.4	0.11	A	15.7	0.25	C	19.0	0.31	C	12.0	0.38	B	4.5	0.11	A
South/West 25A Through										10.0	0.79	A	18.3	0.79	C
INTERSECTION	*11.7*		*B*	*21.4*		*C*	*15.7*		*C*	*14.8*		*B*	*11.8*		*B*

PM Peak Hour

Movement	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
Stony Brook Rd Left	112.6	1.03	F	156.6	1.16	F	297.7	1.52	F	64.1	0.93	E	20.9	0.62	C
Stony Brook Rd Right	32.1	0.59	D	38.1	0.66	E	32.3	0.56	D				10.7	0.33	B
North/East 25A Thru										34.3	0.95	C	24.8	0.88	C
North/East 25A Right													7.2	0.42	A
South/West 25A Left	11.5	0.22	B	11.8	0.24	B	12.0	0.24	B	66.2	0.94	E	5.2	0.17	A
South/West 25A Through										10.2	0.68	B	19.7	0.80	C
INTERSECTION	*13.2*		*B*	*19.1*		*C*	*44.4*		*E*	*31.9*		*C*	*18.1*		*C*

Saturday Peak Hour

Movement	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
Stony Brook Rd Left	13.5	0.29	B	49.6	0.67	E	111.7	1.01	F	20.9	0.62	C	8.1	0.28	A
Stony Brook Rd Right	15.9	0.37	C	16.6	0.39	C	17.7	0.19	C				6.9	0.24	A
North/East 25A Thru										17.3	0.84	B	9.5	0.54	A
North/East 25A Right													5.0	0.23	A
South/West 25A Left	39.5	0.57	E	9.5	0.18	A	17.0	0.37	C	11.6	0.48	B	4.7	0.16	A
South/West 25A Through										7.2	0.53	A	8.6	0.49	A
INTERSECTION	*4.1*		*A*	*5.5*		*A*	*17.2*		*C*	*13.5*		*B*	*7.8*		*A*

Level of Service for Unsignalized Intersection - NYS Route 25A at Lake Avenue

AM Peak Hour

Movement	2017 Existing Seasonally Adjusted Volumes			2020 No Build Volumes			2020 Build Volumes		
	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
Northbound Thr.	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
Right	17.9	0.42	C	19.4	0.46	C	21.3	0.50	C
Westbound Left	11.1	0.25	B	11.5	0.26	B	11.9	0.28	B
INTERSECTION	*2.7*		*A*	*2.9*		*A*	*3.1*		*A*

PM Peak Hour

Movement	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
Northbound Thr.	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
Right	49.3	0.85	E	61.6	0.91	F	74.1	0.96	F
Westbound Left	14.1	0.38	B	14.8	0.41	B	15.8	0.45	C
INTERSECTION	*7.4*		*A*	*9.0*		*A*	*10.5*		*B*

Saturday Peak Hour

Movement	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
Northbound Thr.	25.2	0.01	D	27.1	0.01	D	29.2	0.01	D
Right	14.5	0.38	B	15.1	0.41	C	15.9	0.43	C
Westbound Left	9.7	0.20	A	9.8	0.21	A	10.0	0.23	B
INTERSECTION	*3.3*		*A*	*4.2*		*A*	*3.6*		*A*

Level of Service for Signalized Intersection - NYS Route 25A at Moriches Road

AM Peak Hour

	2017 Existing Seasonally Adjusted Volumes			2020 No Build Volumes			2020 Build Volumes		
Movement	**Delay**	**v/c Ratio**	**LOS**	**Delay**	**v/c Ratio**	**LOS**	**Delay**	**v/c Ratio**	**LOS**
South Moriches Left	19.5	0.14	B	21.1	0.15	C	22.4	0.16	C
South Mor Thru-Right	18.5	0.24	B	19.9	0.25	B	21.1	0.26	C
North Moriches Left	23.6	0.44	C	25.7	0.48	C	27.3	0.50	C
Through	17.8	0.14	B	19.1	0.15	B	20.3	0.16	C
North-East 25A LT	14.9	0.81	B	15.4	0.82	B	16.1	0.84	B
North-East 25A Right	7.5	0.11	A	7.2	0.11	A	7.0	0.11	A
South-West 25A TR	15.8	0.84	B	16.1	0.85	B	16.1	0.84	B
INTERSECTION	*16.0*		*B*	*16.7*		*B*	*17.2*		*B*

PM Peak Hour

South Moriches Left	26.5	0.29	C	30.9	0.32	C	35.4	0.34	D
South Mor Thru-Right	22.7	0.31	C	26.4	0.32	C	30.1	0.33	C
North Moriches Left	29.3	0.53	C	34.4	0.58	C	40.0	0.62	D
Through	22.6	0.29	C	26.2	0.31	C	29.9	0.31	C
North-East 25A LT	14.0	0.84	B	18.1	0.87	B	26.2	0.93	C
North-East 25A Right	6.2	0.19	A	6.5	0.19	A	6.6	0.19	A
South-West 25A TR	11.5	0.77	B	13.4	0.78	B	15.8	0.81	B
INTERSECTION	*15.0*		*B*	*18.1*		*B*	*22.7*		*C*

Saturday Peak Hour

South Moriches Left	10.6	0.06	B	11.1	0.06	B	11.6	0.06	B
South Mor Thru-Right	9.8	0.25	A	10.2	0.26	B	10.7	0.26	B
North Moriches Left	12.4	0.36	B	13.2	0.39	B	13.8	0.40	B
Through	9.7	0.24	A	10.2	0.25	B	10.6	0.26	B
North-East 25A LT	9.4	0.60	A	9.4	0.62	A	9.6	0.63	A
North-East 25A Right	6.9	0.22	A	6.8	0.22	A	6.7	0.21	A
South-West 25A TR	9.5	0.63	A	9.4	0.64	A	9.6	0.65	A
INTERSECTION	*9.6*		*A*	*9.8*		*A*	*10.0*		*A*

Level of Service for Signalized Intersection - Lake Avenue at Moriches Road

AM Peak Hour

	2017 Existing Seasonally Adjusted Volumes			2020 No Build Volumes			2020 Build Volumes		
Movement	**Delay**	**v/c Ratio**	**LOS**	**Delay**	**v/c Ratio**	**LOS**	**Delay**	**v/c Ratio**	**LOS**
Eastbound LT	9.3	0.14	A	9.4	0.14	A	9.4	0.14	A
Right	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
Westbound LT	9.9	0.26	A	9.9	0.27	A	9.9	0.27	A
Right	9.0	0.06	A	9.0	0.06	A	9.0	0.06	A
Northbound Left	7.1	0.15	A	7.2	0.16	A	7.2	0.16	A
Through-Right	5.9	0.23	A	6.0	0.24	A	6.0	0.25	A
Southbound Left	6.6	0.02	A	6.6	0.02	A	6.7	0.02	A
Through	5.9	0.22	A	5.9	0.23	A	5.9	0.23	A
INTERSECTION	*7.5*		*A*	*7.5*		*A*	*7.5*		*A*

PM Peak Hour

Eastbound LT	9.7	0.24	A	9.7	0.25	A	9.7	0.25	A
Right	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
Westbound LT	9.7	0.23	A	9.8	0.24	A	9.8	0.24	A
Right	9.3	0.13	A	9.3	0.13	A	9.3	0.13	A
Northbound Left	7.7	0.24	A	7.8	0.26	A	8.0	0.26	A
Through-Right	6.2	0.29	A	6.2	0.30	A	6.3	0.31	A
Southbound Left	7.2	0.05	A	7.3	0.06	A	7.3	0.06	A
Through	5.9	0.22	A	5.9	0.23	A	6.0	0.25	A
INTERSECTION	*7.6*		*A*	*7.7*		*A*	*7.7*		*A*

Saturday Peak Hour

Eastbound LT	9.5	0.20	A	9.6	0.21	A	9.6	0.21	A
Right	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
Westbound LT	10.2	0.31	B	10.2	0.33	B	10.2	0.33	B
Right	9.2	0.11	A	9.2	0.11	A	9.2	0.11	A
Northbound Left	7.2	0.20	A	7.3	0.20	A	7.4	0.21	A
Through-Right	6.0	0.23	A	6.0	0.24	A	6.1	0.25	A
Southbound Left	6.8	0.06	A	6.8	0.06	A	6.9	0.06	A
Through	5.8	0.20	A	5.8	0.21	A	5.8	0.22	A
INTERSECTION	*7.7*		*A*	*7.8*		*A*	*7.8*		*A*

Level of Service for Unsignalized Intersection - Moriches Road at Mills Pond Road-Evon Lane

	2017 Existing Seasonally Adjusted Volumes			2020 No Build Volumes			2020 Build Volumes		
AM Peak Hour									
Movement	**Delay**	**v/c Ratio**	**LOS**	**Delay**	**v/c Ratio**	**LOS**	**Delay**	**v/c Ratio**	**LOS**
Northbound LTR	9.1	0.30	A	9.4	0.33	A	10.6	0.43	B
Eastbound LTR	8.1	0.02	A	8.2	0.02	A	8.5	0.02	A
Westbound Left	10.1	0.21	B	10.4	0.23	B	11.2	0.28	B
Right	7.5	0.02	A	7.6	0.02	A	7.8	0.02	A
Southbound LTR	8.7	0.17	A	8.8	0.18	A	9.1	0.19	A
INTERSECTION	*9.2*		*A*	*9.4*		*A*	*10.3*		*B*
PM Peak Hour									
Northbound LTR	16.1	0.63	C	17.8	0.68	C	27.6	0.81	D
Eastbound LTR	9.6	0.06	A	9.9	0.07	A	10.7	0.08	B
Westbound Left	14.0	0.41	B	15.1	0.45	C	23.7	0.68	C
Right	8.4	0.01	A	8.5	0.02	A	8.8	0.02	A
Southbound LTR	10.8	0.30	B	11.3	0.31	B	12.8	0.35	B
INTERSECTION	*14.2*		*B*	*15.4*		*C*	*23.1*		*C*
Saturday Peak Hour									
Northbound LTR	13.1	0.53	B	14.1	0.56	B	17.4	0.66	C
Eastbound LTR	9.3	0.06	A	9.5	0.07	A	10.0	0.07	A
Westbound Left	13.1	0.37	B	14.0	0.41	B	16.5	0.50	C
Right	8.2	0.01	A	8.3	0.01	A	8.5	0.01	A
Southbound LTR	10.8	0.32	B	11.2	0.34	B	12.0	0.36	B
INTERSECTION	*12.3*		*B*	*13.1*		*B*	*15.6*		*C*

Level of Service for Signalized Intersection - Moriches Road at Woodlawn Avenue

AM Peak Hour

Movement	2017 Existing Seasonally Adjusted Volumes			2020 No Build Volumes			2020 Build Volumes		
	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
Eastbound Left	21.3	0.18	C	21.3	0.18	C	21.3	0.18	C
Right	16.1	0.49	B	16.3	0.51	B	16.3	0.51	B
Northbound Left	7.0	0.32	A	7.1	0.33	A	7.3	0.34	A
Through	4.3	0.22	A	4.3	0.24	A	4.6	0.30	A
Southbound TR	13.9	0.42	B	14.1	0.44	B	14.4	0.49	B
INTERSECTION	*10.8*		*B*	*10.9*		*B*	*10.7*		*B*

PM Peak Hour

Movement	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
Eastbound Left	22.2	0.31	C	22.2	0.31	C	23.6	0.33	C
Right	28.9	0.83	C	31.9	0.86	C	38.8	0.90	D
Northbound Left	10.6	0.58	B	11.8	0.62	B	14.8	0.69	B
Through	4.8	0.35	A	4.8	0.36	A	4.8	0.39	A
Southbound TR	17.1	0.72	B	17.8	0.77	B	19.7	0.86	B
INTERSECTION	*15.9*		*B*	*17.0*		*B*	*19.4*		*B*

Saturday Peak Hour

Movement	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
Eastbound Left	21.3	0.15	C	21.3	0.15	C	21.3	0.15	C
Right	26.9	0.81	C	29.1	0.83	C	29.1	0.83	C
Northbound Left	9.8	0.54	A	10.7	0.58	B	11.8	0.61	B
Through	4.6	0.31	A	4.7	0.32	A	4.8	0.36	A
Southbound TR	16.6	0.69	B	17.2	0.73	B	18.3	0.79	B
INTERSECTION	*15.1*		*B*	*16.0*		*B*	*16.3*		*B*

Level of Service for Signalized Intersection - Moriches Road at Route 347

Sat - also move 2 seconds NB to SB
Add 3 seconds to max EB L green

DOT Mitigation: also add 2nd EB Left turn bay

AM Peak Hour

Movement	2017 Existing Seasonally Adjusted Volumes			2020 No Build Volumes			2020 Build Volumes			2020 Mitigated			DOT Mitigation: also add 2nd EB Left turn bay		
	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
Eastbound Left	56.7	0.77	E	59.1	0.78	E	62.5	0.82	E	59.6	0.81	E	51.6	0.65	D
Through	10.6	0.46	B	10.6	0.47	B	10.5	0.47	B	10.5	0.47	B	10.9	0.48	B
Right	1.9	0.02	A	1.8	0.02	A	1.9	0.02	A	1.9	0.02	A	2.0	0.02	A
Westbound Left	55.7	0.46	E	59.3	0.47	E	62.6	0.48	E	62.4	0.48	E	58.1	0.47	E
Through	17.2	0.76	B	17.9	0.78	B	19.6	0.79	B	19.7	0.79	B	17.4	0.77	B
Right	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
Northbound Left	43.1	0.01	D	46.1	0.01	D	49.0	0.01	D	48.8	0.01	D	45.3	0.01	D
Through	47.4	0.30	D	51.5	0.35	D	56.8	0.49	E	56.7	0.49	E	51.8	0.46	D
Right	44.4	0.10	D	47.7	0.10	D	50.7	0.11	D	50.5	0.11	D	46.6	0.10	D
Southbound Left	46.9	0.75	D	50.2	0.77	D	53.1	0.78	D	52.9	0.78	D	48.9	0.77	D
Through	50.9	0.57	D	54.6	0.59	D	56.4	0.58	E	56.3	0.58	E	51.8	0.55	D
Right	21.9	0.38	C	23.8	0.38	C	24.1	0.38	C	24.0	0.38	C	24.3	0.47	C
INTERSECTION	*18.5*		*B*	*19.3*		*B*	*21.0*		*C*	*20.9*		*C*	*19.3*		*B*

PM Peak Hour

Movement	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
Eastbound Left	59.2	0.83	E	68.1	0.85	E	80.3	0.88	F	72.3	0.87	E	50.8	0.71	D
Through	21.4	0.71	C	22.4	0.71	C	23.8	0.70	C	23.8	0.70	C	24.1	0.76	C
Right	6.3	0.14	A	6.6	0.14	A	6.9	0.14	A	6.9	0.14	A	7.0	0.15	A
Westbound Left	48.9	0.68	D	53.1	0.70	D	57.5	0.72	E	57.5	0.72	E	50.6	0.69	D
Through	24.5	0.77	C	26.2	0.78	C	29.0	0.80	C	29.2	0.80	C	24.6	0.78	C
Right	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
Northbound Left	47.8	0.50	D	51.4	0.50	D	54.0	0.45	D	54.0	0.45	D	47.8	0.44	D
Through	49.7	0.77	D	54.0	0.79	D	58.3	0.81	E	58.4	0.81	E	51.1	0.79	D
Right	37.1	0.39	D	40.1	0.40	D	43.1	0.39	D	43.1	0.39	D	37.6	0.38	D
Southbound Left	47.5	0.79	D	53.6	0.81	D	61.7	0.85	E	61.8	0.85	E	51.7	0.83	D
Through	48.3	0.81	D	54.0	0.83	D	61.2	0.85	E	61.3	0.85	E	50.9	0.83	D
Right	14.7	0.32	B	16.5	0.34	B	17.7	0.42	B	17.7	0.42	B	17.3	0.49	B
INTERSECTION	*29.0*		*C*	*31.3*		*C*	*34.9*		*C*	*34.7*		*C*	*30.5*		*C*

Saturday Peak Hour

Movement	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
Eastbound Left	60.1	0.87	E	66.9	0.88	E	78.5	0.93	E	66.2	0.89	E	46.6	0.75	D
Through	25.7	0.72	C	26.7	0.72	C	26.8	0.71	C	26.9	0.71	C	27.2	0.74	C
Right	9.8	0.32	A	10.2	0.32	B	10.3	0.31	B	10.5	0.31	B	10.5	0.33	B
Westbound Left	47.2	0.82	D	51.5	0.83	D	53.1	0.84	D	54.7	0.84	D	50.5	0.83	D
Through	27.1	0.75	C	28.4	0.76	C	29.1	0.77	C	30.0	0.77	C	24.2	0.68	C
Right	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
Northbound Left	46.3	0.66	D	48.8	0.68	D	49.8	0.68	D	51.1	0.69	D	48.3	0.68	D
Through	42.3	0.66	D	45.2	0.69	D	48.0	0.74	D	48.9	0.73	D	45.4	0.72	D
Right	29.7	0.41	C	31.4	0.42	C	32.4	0.43	C	33.1	0.43	C	31.0	0.42	C
Southbound Left	43.8	0.78	D	47.5	0.80	D	49.4	0.81	D	50.9	0.82	D	47.2	0.81	D
Through	53.3	0.85	D	59.1	0.86	E	61.6	0.87	E	58.9	0.86	E	54.0	0.85	D
Right	10.6	0.29	B	11.2	0.30	B	11.5	0.33	B	11.5	0.32	B	13.6	0.40	B
INTERSECTION	*32.5*		*C*	*34.7*		*C*	*36.2*		*D*	*36.0*		*D*	*32.4*		*C*

Level of Service for Signalized Intersection - Route 25A at Main Street

AM Peak Hour

	2017 Existing Seasonally Adjusted Volumes			2020 No Build Volumes			2020 Build Volumes		
Movement	**Delay**	**v/c Ratio**	**LOS**	**Delay**	**v/c Ratio**	**LOS**	**Delay**	**v/c Ratio**	**LOS**
Westbound Left	28.5	0.90	C	31.2	0.91	C	32.3	0.92	C
Right	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
Northbound Thru	21.6	0.35	C	22.6	0.36	C	23.1	0.36	C
Right	6.4	0.55	A	6.3	0.56	A	6.3	0.56	A
Southbound Left	17.2	0.22	B	18.0	0.24	B	18.4	0.24	B
Through	15.6	0.36	B	16.6	0.38	B	17.0	0.38	B
INTERSECTION	*17.8*		*B*	*19.1*		*B*	*19.7*		*B*

PM Peak Hour

Westbound Left	45.7	0.96	D	49.4	0.97	D	52.2	0.98	D
Right	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
Northbound Thru	27.6	0.57	C	29.0	0.61	C	29.0	0.61	C
Right	8.5	0.70	A	8.9	0.72	A	9.1	0.74	A
Southbound Left	21.2	0.39	C	22.2	0.42	C	22.2	0.42	C
Through	17.5	0.29	B	18.2	0.31	B	18.3	0.31	B
INTERSECTION	*25.1*		*C*	*26.7*		*C*	*27.7*		*C*

Saturday Peak Hour

Westbound Left	20.5	0.82	C	21.0	0.83	C	21.1	0.83	C
Right	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
Northbound Thru	17.6	0.50	B	18.0	0.51	B	18.2	0.51	B
Right	7.3	0.51	A	7.3	0.52	A	7.2	0.52	A
Southbound Left	12.8	0.27	B	13.2	0.28	B	13.4	0.28	B
Through	10.3	0.32	B	10.7	0.33	B	10.8	0.33	B
INTERSECTION	*13.7*		*B*	*14.0*		*B*	*14.1*		*B*

Level of Service for Signalized Intersection - Stony Brook Road at South Drive

AM Peak Hour	2017 Existing Seasonally Adjusted Volumes			2020 No Build Volumes			2020 Build Volumes			2020 Mitigated		
Movement	**Delay**	**v/c Ratio**	**LOS**	**Delay**	**v/c Ratio**	**LOS**	**Delay**	**v/c Ratio**	**LOS**	**Delay**	**v/c Ratio**	**LOS**
Westbound Left	17.2	0.17	B	17.2	0.17	B	17.1	0.17	B	19.0	0.18	B
Right	17.5	0.21	B	17.6	0.23	B	18.0	0.29	B	20.0	0.31	C
Northbound Thru	8.6	0.31	A	9.1	0.38	A	9.9	0.47	A	28.9	0.79	C
Right	26.3	0.90	C	31.2	0.93	C	31.9	0.94	C	16.5	0.83	B
Southbound LT (L)	176.9	1.31	F	291.6	1.57	F	426.2	1.87	F	34.8	0.89	C
(Through)										7.8	0.22	A
INTERSECTION	*66.7*		*E*	*101.4*		*F*	*139.4*		*F*	*22.0*		*C*

PM Peak Hour

Movement	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
Westbound Left	36.0	0.92	D	37.9	0.93	D	37.8	0.93	D	34.8	0.93	C
Right	16.2	0.37	B	16.0	0.38	B	16.3	0.40	B	14.5	0.40	B
Northbound Thru	14.2	0.28	B	15.0	0.30	B	15.6	0.37	B	24.0	0.58	C
Right	16.6	0.51	B	17.6	0.54	B	17.6	0.54	B	4.2	0.33	A
Southbound LT (L)	37.3	0.89	D	83.8	1.07	F	266.1	1.51	F	30.6	0.72	C
(Through)										21.3	0.74	C
INTERSECTION	*28.3*		*C*	*42.6*		*D*	*103.4*		*F*	*23.0*		*C*

Saturday Peak Hour

Movement	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
Westbound Left	10.8	0.26	B	10.8	0.26	B	10.8	0.26	B	15.2	0.31	B
Right	10.0	0.09	A	10.0	0.09	A	10.1	0.11	B	14.1	0.13	B
Northbound Thru	10.7	0.33	B	10.9	0.36	B	11.5	0.44	B	16.6	0.51	B
Right	10.5	0.30	B	10.7	0.31	B	10.7	0.31	B	3.9	0.18	A
Southbound LT (L)	11.9	0.50	B	12.2	0.53	B	13.3	0.63	B	11.8	0.21	B
(Through)										10.2	0.42	B
INTERSECTION	*11.1*		*B*	*11.3*		*B*	*11.9*		*B*	*11.9*		*B*

Level of Service for Signalized Intersection - Stony Brook Road at Oxhead Road

AM Peak Hour

	2017 Existing Seasonally Adjusted Volumes			2020 No Build Volumes			2020 Build Volumes			2020 Mitigated		
Movement	**Delay**	**v/c Ratio**	**LOS**	**Delay**	**v/c Ratio**	**LOS**	**Delay**	**v/c Ratio**	**LOS**	**Delay**	**v/c Ratio**	**LOS**
Westbound LR	23.6	0.70	C	40.5	0.85	D	69.7	0.96	E	67.0	0.94	E
Northbound TR	11.4	0.84	B	13.0	0.84	B	15.8	0.85	B	29.9	0.95	C
Southbound LT (L)	10.8	0.65	B	16.1	0.73	B	43.6	0.90	D	23.9	0.62	C
Through										4.7	0.17	A
INTERSECTION	*13.2*		*B*	*18.2*		*B*	*31.2*		*C*	*32.6*		*C*

PM Peak Hour

Movement	2017 Delay	2017 v/c Ratio	2017 LOS	No Build Delay	No Build v/c Ratio	No Build LOS	Build Delay	Build v/c Ratio	Build LOS	Mitigated Delay	Mitigated v/c Ratio	Mitigated LOS
Westbound LR	54.9	0.85	D	57.1	0.86	E	66.5	0.90	E	44.2	0.84	D
Northbound TR	5.0	0.48	A	5.4	0.00	A	6.2	0.53	A	27.1	0.90	C
Southbound LT (L)	61.6	1.06	F	130.8	1.23	F	264.0	1.53	F	14.7	0.67	B
Through										10.1	0.79	B
INTERSECTION	*42.1*		*D*	*82.1*		*F*	*161.3*		*F*	*19.9*		*B*

Saturday Peak Hour

Movement	2017 Delay	2017 v/c Ratio	2017 LOS	No Build Delay	No Build v/c Ratio	No Build LOS	Build Delay	Build v/c Ratio	Build LOS	Mitigated Delay	Mitigated v/c Ratio	Mitigated LOS
Westbound LR	16.3	0.49	B	16.5	0.52	B	17.5	0.60	B	26.3	0.71	C
Northbound TR	6.7	0.45	A	6.9	0.47	A	7.1	0.49	A	12.8	0.59	B
Southbound LT (L)	7.4	0.54	A	8.3	0.61	A	10.5	0.72	B	8.7	0.35	A
Through										5.6	0.36	A
INTERSECTION	*8.6*		*A*	*9.2*		*A*	*10.5*		*B*	*12.4*		*B*

Level of Service for Signalized Intersection - Stony Brook Road at Hallock Road

	2017 Existing Seasonally Adjusted Volumes			2020 No Build Volumes			2020 Build Volumes		
AM Peak Hour									
Movement	**Delay**	**v/c Ratio**	**LOS**	**Delay**	**v/c Ratio**	**LOS**	**Delay**	**v/c Ratio**	**LOS**
Eastbound Left	16.3	0.38	B	17.9	0.40	B	18.9	0.42	B
Right	14.7	0.05	B	16.0	0.05	B	16.9	0.05	B
Northbound Left	7.2	0.02	A	7.1	0.02	A	7.0	0.02	A
Through	9.4	0.77	A	9.6	0.79	A	9.7	0.80	A
Southbound TR	6.0	0.33	A	5.9	0.34	A	5.7	0.34	A
INTERSECTION	*9.2*		*A*	*9.4*		*A*	*9.5*		*A*
PM Peak Hour									
Eastbound Left	29.1	0.66	C	34.9	0.71	C	39.1	0.74	D
Right	22.2	0.16	C	24.3	0.17	C	25.9	0.18	C
Northbound Left	21.8	0.20	C	24.5	0.23	C	27.2	0.25	C
Through	5.5	0.39	A	5.3	0.39	A	5.2	0.40	A
Southbound TR	13.3	0.87	B	15.7	0.89	B	18.4	0.91	B
INTERSECTION	*13.2*		*B*	*15.2*		*B*	*17.2*		*B*
Saturday Peak Hour									
Eastbound Left	15.1	0.38	B	15.1	0.38	B	15.1	0.38	B
Right	13.8	0.11	B	13.8	0.11	B	13.8	0.11	B
Northbound Left	9.9	0.06	A	10.3	0.06	B	10.6	0.06	B
Through	6.6	0.35	A	6.7	0.36	A	6.8	0.39	A
Southbound TR	7.6	0.53	A	7.8	0.55	A	7.9	0.57	A
INTERSECTION	*8.5*		*A*	*8.6*		*A*	*8.7*		*A*

Level of Service for Signalized Intersection - Stony Brook Road at Route 347

AM Peak Hour	2017 Existing Seasonally Adjusted Volumes			2020 No Build Volumes			2020 Build Volumes		
Movement	**Delay**	**v/c Ratio**	**LOS**	**Delay**	**v/c Ratio**	**LOS**	**Delay**	**v/c Ratio**	**LOS**
Eastbound Left	66.1	0.85	E	66.4	0.86	E	66.8	0.86	E
Through	46.6	0.91	D	48.5	0.92	D	49.1	0.92	D
Right	15.6	0.05	B	15.4	0.05	B	15.3	0.05	B
Westbound Left	56.8	0.31	E	58.7	0.33	E	59.7	0.34	E
Through	69.5	1.04	F	92.1	1.09	F	100.5	1.11	F
Right	25.4	0.17	C	26.8	0.18	C	27.6	0.22	C
Northbound Left	49.9	0.21	D	51.2	0.22	D	51.6	0.22	D
Through	60.6	0.63	E	64.0	0.68	E	66.8	0.73	E
Right	30.7	0.51	C	32.5	0.54	C	33.3	0.54	C
Southbound Left	48.6	0.61	D	51.4	0.65	D	53.7	0.69	D
Through	47.8	0.19	D	49.0	0.21	D	49.0	0.21	D
Right	51.7	0.40	D	53.5	0.44	D	53.3	0.43	D
INTERSECTION	*58.6*		*E*	*69.8*		*E*	*73.9*		*E*

PM Peak Hour										*Retime to add SB L green* 2020 Mitigated			*Add NB R lane* 2020 Mitigated		
										Delay	**v/c Ratio**	**LOS**	**Delay**	**v/c Ratio**	**LOS**
Eastbound Left	75.7	0.87	E	77.1	0.87	E	77.1	0.87	E	78.2	0.87	E	78.0	0.88	E
Through	72.3	1.06	F	90.7	1.11	F	99.5	1.13	F	105.2	1.14	F	96.9	1.12	F
Right	8.7	0.11	A	8.9	0.11	A	8.9	0.11	A	9.3	0.11	A	4.6	0.10	A
Westbound Left	80.9	0.84	F	81.5	0.84	F	81.5	0.84	F	82.7	0.84	F	82.9	0.84	F
Through	35.1	0.86	D	38.5	0.90	D	39.2	0.91	D	41.0	0.92	D	39.8	0.91	D
Right	20.8	0.17	C	21.5	0.17	C	21.7	0.20	C	22.4	0.20	C	12.0	0.15	B
Northbound Left	58.2	0.43	E	58.3	0.45	E	58.7	0.47	E	60.3	0.45	E	61.4	0.48	E
Through	68.1	0.67	E	68.6	0.67	E	70.4	0.71	E	79.4	0.78	E	66.4	0.47	E
Right	45.1	0.50	D	44.8	0.50	D	44.8	0.50	D	47.5	0.56	D	30.4	0.34	C
Southbound Left	107.6	0.99	F	122.0	1.04	F	171.9	1.19	F	142.6	1.11	F	106.5	1.00	F
Through	63.3	0.66	E	65.0	0.68	E	68.5	0.74	E	66.3	0.71	E	69.8	0.76	E
Right	98.8	0.93	F	128.0	1.03	F	128.0	1.03	F	115.4	0.99	F	48.1	0.58	D
INTERSECTION	*58.5*		*E*	*68.2*		*E*	*74.4*		*E*	*75.3*		*E*	*66.7*		*E*

Saturday Peak Hour									
Eastbound Left	66.0	0.86	E	67.6	0.87	E	68.0	0.87	E
Through	47.3	0.99	D	60.5	1.03	F	66.5	1.05	F
Right	4.6	0.15	A	4.9	0.16	A	5.0	0.16	A
Westbound Left	71.0	0.81	E	68.8	0.78	E	69.1	0.77	E
Through	41.2	0.95	D	50.0	0.99	D	53.6	1.00	F
Right	20.0	0.17	B	20.5	0.18	C	21.0	0.20	C
Northbound Left	111.5	1.04	F	125.5	1.08	F	127.3	1.09	F
Through	50.0	0.38	D	50.4	0.39	D	50.6	0.41	D
Right	89.7	1.02	F	97.1	1.04	F	90.6	1.02	F
Southbound Left	52.6	0.43	D	53.2	0.45	D	53.8	0.50	D
Through	63.0	0.70	E	64.8	0.71	E	66.2	0.73	E
Right	62.0	0.56	E	62.3	0.56	E	61.6	0.54	E
INTERSECTION	*50.9*		*D*	*59.7*		*E*	*62.4*		*E*

Level of Service for Site Driveway - Mills Pond Road Site Access 1

2020 Build Scenario only

Time Period	Movement	Delay (sec/veh)	v/c Ratio	LOS
AM Peak Hour	Westbound Left	9.3	0.01	A
	Southbound Left	7.6	0.00	A
	INTERSECTION	*0.1*		*A*
PM Peak Hour	Westbound Left	12.1	0.01	B
	Southbound Left	0.0	0.00	A
	INTERSECTION	*0.1*		*A*
Saturday Peak Hour	Westbound Left	10.6	0.05	B
	Southbound Left	7.7	0.02	A
	INTERSECTION	*1.1*		*A*

Level of Service for Site Driveway - Mills Pond Road Site Access 2

2020 Build Scenario only

Time Period	Movement	Delay (sec/veh)	v/c Ratio	LOS
AM Peak Hour	Westbound Left	15.7	0.30	C
	Southbound Left	8.2	0.16	A
	INTERSECTION	*6.3*		*A*
PM Peak Hour	Westbound Left	21.7	0.62	C
	Southbound Left	8.0	0.10	A
	INTERSECTION	*9.9*		*A*
Saturday Peak Hour	Westbound Left	12.5	0.20	B
	Southbound Left	7.8	0.08	A
	INTERSECTION	*3.9*		*A*

Level of Service for Site Driveway - Route 25A Site Access

2020 Build Scenario only

Time Period	Movement	Delay (sec/veh)	v/c Ratio	LOS
AM Peak Hour	NB-R	24.6	0.20	C
	INTERSECTION	*0.4*		*A*
PM Peak Hour	NB-R	43.3	0.68	E
	INTERSECTION	*9.9*		*A*
Saturday Peak Hour	NB-R	17.7	0.19	C
	INTERSECTION	*0.7*		*A*

Level of Service for Unsignalized Intersection - Stony Brook Road at Development Drive

AM Peak Hour

Movement	2018 Existing Seasonally Adjusted Volumes Delay	v/c Ratio	LOS	2020 No Build Volumes Delay	v/c Ratio	LOS	2020 Build Volumes Delay	v/c Ratio	LOS
NB Left-Through	8.9	0.12	A	9.5	0.20	A	9.7	0.20	A
Eastbound Left	20.8	0.05	C	30.2	0.11	D	38.0	0.14	E
Eastbound Right	11.7	0.06	B	12.4	0.10	B	12.9	0.10	B
INTERSECTION	*1.9*		*A*	*2.8*		*A*	*2.6*		*A*

PM Peak Hour

Movement	2018 Existing Seasonally Adjusted Volumes Delay	v/c Ratio	LOS	2020 No Build Volumes Delay	v/c Ratio	LOS	2020 Build Volumes Delay	v/c Ratio	LOS
NB Left-Through	8.3	0.02	A	8.4	0.03	A	9.0	0.03	A
Eastbound Left	19.0	0.12	C	23.2	0.22	C	33.6	0.31	D
Eastbound Right	11.6	0.13	B	12.8	0.23	B	15.4	0.29	C
INTERSECTION	*1.8*		*A*	*2.8*		*A*	*3.0*		*A*

Saturday Peak Hour

Not Applicable - the R&D Park buildings close on Saturdays

8. Mitigation Summary

Below are descriptions of the proposed traffic mitigation measures for the six intersections that require mitigation. Where lane changes and restriping are recommended, the proposed improvements are depicted in Figure 8-1 through Figure 8-7.

Based on GIS parcel data, the right-of-way widths on Route 25A and Stony Brook Road are 50 feet and 60 feet, respectively. It is anticipated that any improvements can be achieved within public right-of-way, and no acquisitions or easements are required.

8.1 Route 25A and Mills Pond Road

Signalize the intersection, and provide westbound left turn arrow and northbound right turn arrow phases in the timing plan. The intent is to allow what's called "protected-permitted" operation, where westbound drivers will have a left turn arrow, but they can also make a left turn with a solid green ball, so long as they yield to oncoming eastbound traffic. Provide a 50-foot westbound left turn lane on Route 25A, and restripe the eastbound and westbound intersection approaches to provide appropriate tapers in both directions. See Figure 8-1 on page 8-4. As mentioned earlier, there would also be a "Signal Ahead" sign with flashing beacons in both directions on Route 25A to alert drivers of the new signal.

8.2 Route 25A and Stony Brook Road

Based on high westbound delays, Cameron Engineering performed a signal warrant study of this intersection (see Appendix D) and found that this intersection also warrants a traffic signal. NYSDOT later asked Cameron Engineering to examine a roundabout at this intersection as well.

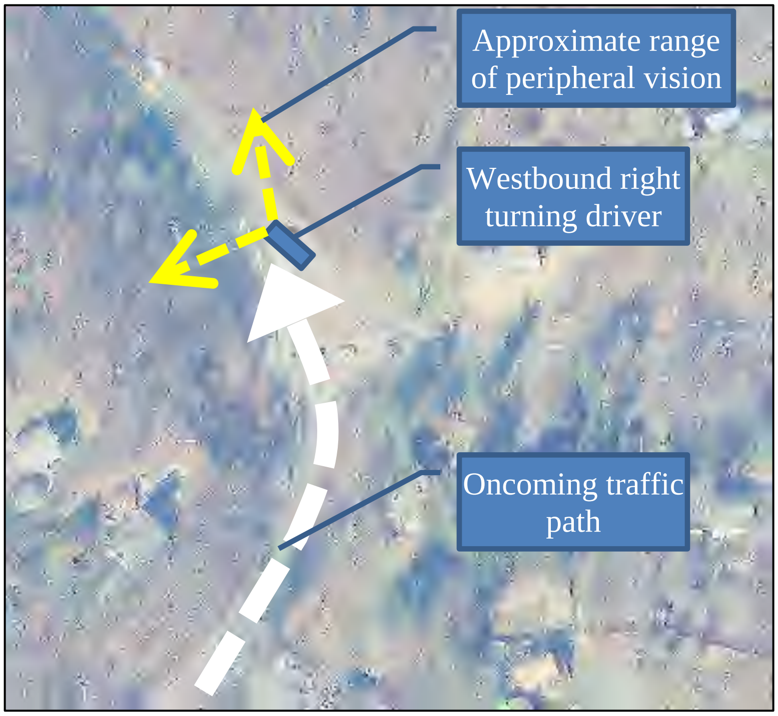
A roundabout would need two circulating lanes and two approach lanes in each direction, and would likely involve private property acquisition. See Figure 8-2 on page 8-5.

The signalization option includes signalizing the intersection with a southbound left turn arrow phase. Additionally, the intersection's current geometry could be noticeably improved through simple striping changes that would locate the stop line at a logical position for left turns onto Stony Brook Road and remove the two-part decision process for where these turning vehicles merge with right turns from the opposite direction. See Figure 8-3 on page 8-6.

- Shift the southbound left turn to the signalized intersection, and provide a lane to receive southbound left turn traffic.
- Add yield control for northbound right turns. This is a two-part safety measure: it avoids southbound left turns from queuing through the intersection, and it assigns the

yield to an approach where drivers can look straight ahead for the traffic they need to yield right-of-way.

- Stripe the westbound right turn lane to be perpendicular with Route 25A. This will improve sight lines for westbound drivers, compared to the existing condition where drivers have to turn their heads almost 180 degrees (roughly to the "7 o'clock" position) to see oncoming north-eastbound traffic. See the schematic below:



All else aside, it is generally safer when a side street driver can easily see oncoming traffic in the direct line of sight, or at least within the peripheral range of vision. The more a driver has to turn his head to see, the likelier it is that he will miss seeing a potential conflict. Therefore, addressing the current skewed angle between Route 25A and the westbound Stony Brook Road right turn lane will improve safety conditions.

As with the intersection of Route 25A at Mills Pond Road, our office recommends a "Signal Ahead" sign with flashing beacons, posted in both directions of Route 25A approaching the new signal.

8.3 Route 347 and Moriches Road

Modify the traffic signal timing plan to shift 3 seconds of green time to the eastbound approach, and for the off-peak (Saturday) phase plan, also move 2 seconds of green time from the northbound (mall exit) approach to the southbound (Moriches Road) approach. No lane changes are required to return the intersection to its No Build operation. However, NYSDOT has also required mitigation to add another eastbound left turn lane. The analysis was updated for the critical PM peak hour (worst case/highest traffic volume). See Figure 8-4 on page 8-7.

8.4 Stony Brook Road and South Drive

Add a 100-foot southbound left turn lane and restripe a portion of northbound and southbound Stony Brook Road on either side of the intersection to provide appropriate tapers in both directions. At this preliminary stage, it appears this can be achieved with limited to no physical widening. See Figure 8-5 on page 8-8.

Add a southbound left turn arrow phase to the existing signal, for “protected-permitted” operation (drivers can turn on a left turn arrow, or during a green ball, so long as they yield to oncoming northbound traffic). Add a northbound right turn arrow so these right turns can proceed at the same time as the westbound South Drive approach. Minor signal adjustments will be required to add the turn arrows and to ensure that all signal heads retain optimal visibility based on the new lane alignments. “Cone of vision” requirements are dictated by the national *Manual on Uniform Traffic Control Devices* (*MUTCD*).

8.5 Stony Brook Road and Oxhead Road

Restripe a portion of northbound and southbound Stony Brook Road on either side of the intersection to add a 100-foot southbound left turn lane and appropriate tapers in both directions. At this preliminary stage, it appears this can be achieved with limited to no physical widening. See Figure 8-6 on page 8-9.

Add a southbound left turn arrow phase to the existing signal’s timing plan, with protected-permitted operation.

Minor signal work will be required to add signal faces for the turn arrows and to ensure that all signal heads retain optimal visibility per the *MUTCD*.

8.6 Stony Brook Road at Route 347

Modify the traffic signal timing plan by shifting green time from the east-west phase to the southbound approach on Stony Brook Road.

Alternate mitigation is to widen northbound Stony Brook Road to add a ±120-foot northbound right turn lane, and to re-designate the existing right turn lane as a second through lane. The northbound approach would therefore change from Left, Through, Right, to a Left lane, two Through lanes, and a Right lane. Under this alternate mitigation, the signal would also be modified to add right turn overlaps in each direction. See Figure 8-7 on page 8-10.

Conceptual Mitigation Plan for Route 25A at Mills Pond Road
Figure No. 8-1

GRAPHIC SCALE

60 0 30 60 120

(IN FEET)
HORIZ. 1 inch = 60 ft.

CAMERON ENGINEERING
& ASSOCIATES, LLP
177 Crossways Park Drive, Woodbury, NY 11797 T: (516) 827-4900
45 West 36th Street, 3rd Floor, New York, NY 10018 T: (212) 324-4000
303 Tarrytown Road, 1st Floor, White Plains, NY 10603 T: (914) 721-8300
Corporate Seal Initiated 1996 State of New York
www.Cameronengineering.com

Conceptual Mitigation for Rt. 25A–Stony Brook Rd. (Roundabout)

Figure No. 8–2

GRAPHIC SCALE

60 0 30 60 120

(IN FEET)

HORIZ. 1 inch = 60 ft.

CAMERON ENGINEERING
& ASSOCIATES, LLP

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Conceptual Mitigation Plan for Route 25A–Stony Brook Road

Figure No. 8–3

GRAPHIC SCALE

60 0 30 60 120

(IN FEET)

HORIZ. 1 inch = 60 ft.

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Conceptual Mitigation Plan for Route 347 – Moriches Road
Figure No. 8–4

GRAPHIC SCALE

40 0 20 40 80

(IN FEET)
HORIZ. 1 inch = 40 ft.

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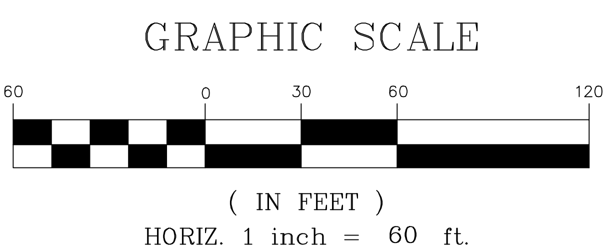
Conceptual Mitigation Plan for Stony Brook Road – South Drive
Figure No. 8–5



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Conceptual Mitigation Plan for Stony Brook Road – Oxhead Road

Figure No. 8-6

GRAPHIC SCALE

60 0 30 60 120

(IN FEET)

HORIZ. 1 inch = 60 ft.

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Conceptual Mitigation Plan for Stony Brook Road - Route 347

Figure No. 8-7

GRAPHIC SCALE

40 0 20 40 80

(IN FEET)

HORIZ. 1 inch = 40 ft.

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9. Alternative Development Scenarios

As the Flowerfield campus property is solely an application for a subdivision, the land use mix studied in the base proposal is a preferred land use mix based on market demand studies and consistency with a plan aligned with strengthening synergies with Stony Brook University and Stony Brook Medical. Accordingly, Gyrodyne LLC developed three potential alternative land use combinations to satisfy three criteria:

1) Meet Town of Smithtown zoning requirements such as parking, setbacks, and all Town-required design elements; sufficient room and setback for the proposed wastewater treatment plant; no change of zone; and synergies with Stony Brook University (including the Research and Development Park and the Medical Center) and Flowerfield Celebrations
2) Satisfy identified needs in Gyrodyne's market studies
3) Keep a similar level of trip generation, sanitary demand, water demand, etc. by increasing some components (i.e. more assisted living units) while decreasing other components (i.e. smaller hotel, smaller office) to demonstrate similar overall environmental impacts
   - Alternative 1: 100-room hotel, 150,000 s.f. office, 150 assisted living units
   - Alternative 2: 150,000 s.f. medical office, 50,000 s.f. general office, 192 assisted living units
   - Alternative 3: 120-room hotel, 136,000 s.f. office, 250 assisted living units

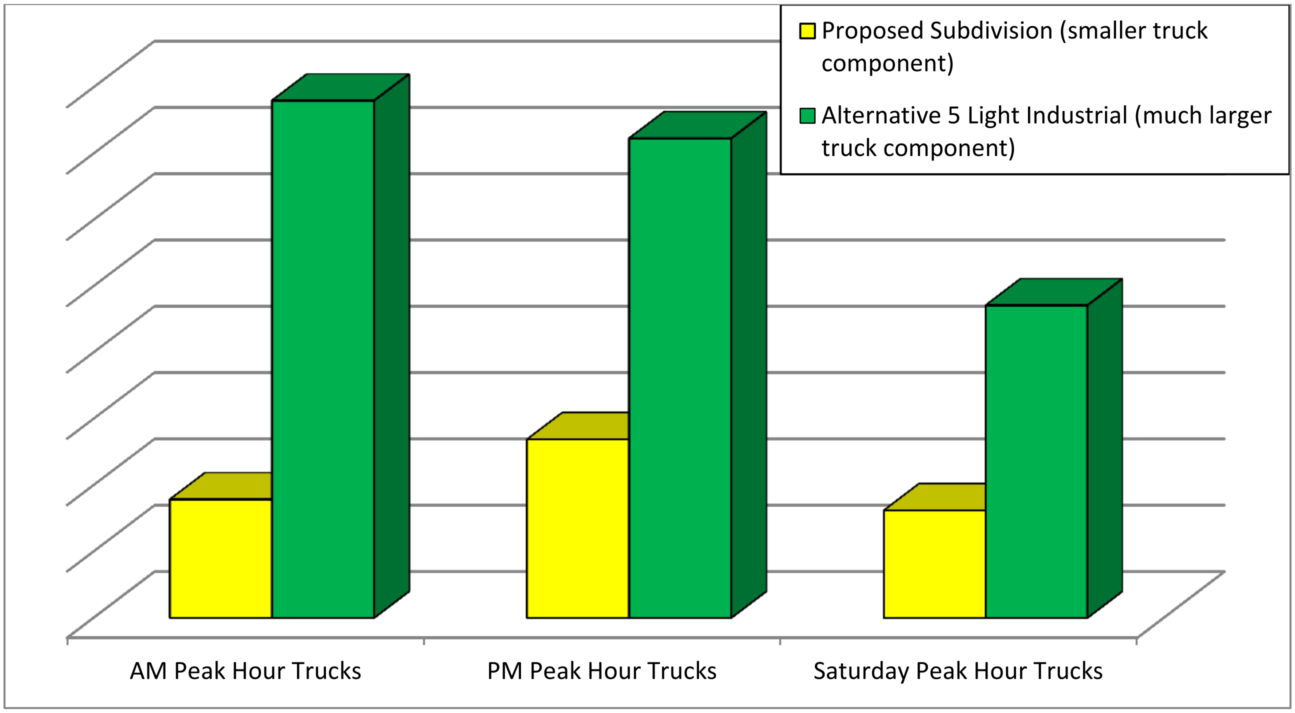
Two additional alternatives were then developed which do not meet the above three criteria, but which could be achieved without requiring a subdivision:

- Alternative 4: 244,000 s.f. medical office uses
- Alternative 5: 382,500 s.f. general light industrial uses

  Alternative 5 Truck Trips: This alternative would generate less traffic than potential subdivision layouts, but would generate at least six times the percentage of trucks as general/R&D office or assisted living. Therefore, despite fewer trips, the traffic impacts of Alternative 5 would be expected to be similar to the impacts of the proposed subdivision. This is because heavy trucks incur more delays to off-site roads than typical smaller vehicles (e.g. passenger cars, SUVs, and smaller trucks): they take longer to accelerate, they tend not to reach the same peak speed, they tend to keep longer following distances (out of caution for the added room they need to stop), and they have wider turning radii.

  See Figure 9-1 on the next page, which depicts the relative numbers of truck trips during peak hours.

Figure 9-1: Relative Truck Numbers



Two more alternatives were then added at the direction of the Town:

- Alternative 6: a "public acquisition" alternative if the Town or County subdivides, acquires, and preserves the site's vacant area as public open space. Alternative 6 contemplates public acquisition of the areas not currently developed, comprising most of Lots 3 through 9. The resulting public space could be utilized as passive or active recreation.

  The trip generation numbers in this study contemplate the Route 25A buffer remaining as passive recreation space (±12.1 acres) and the remaining ±35.8 acres considered as active recreation uses (defined in the ITE *Trip Generation Manual* as a ±48-acre public park).

- Alternative 7 (complies with the unadopted Draft CPU's 50% open space and 300-foot Route 25A buffer, subject to a Suffolk County Health Department variance for the setback of the WWTP expansion area from the LIRR tracks): 125-room hotel, 128,000 s.f. medical office, 240 assisted living units.

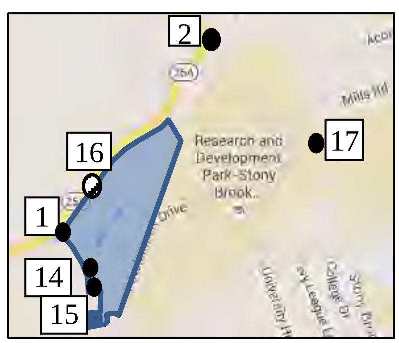
  Alternative 7 complies with the Town's Draft Comprehensive Plan Update of 2016, which was never formally adopted, but which the Scoping Document requires a comparative, qualitative assessment. A conceptual site layout that complies with the Draft CPU's open space (50% minimum) and 300-foot setback to Route 25A would generate almost the exact same number of trips as the proposed action. The difference is 6-22 trips per hour, a range of 1.7-4.3%.

Next, the Final Scope requires analysis of the (previously) proposed use of the railroad crossing between Gyrodyne and the Stony Brook R&D Park. Gyrodyne has been actively coordinating the proposed re-opening of the railroad crossing. While significant progress has been made in this effort, including support from Stony Brook University, there is still a degree of uncertainty as to when this might be accomplished. Timing associated with LIRR and NYSDOT involvement and with one or more public hearings required to secure an approval results in an uncertain timeframe. Accordingly, Gyrodyne modified the Preliminary Subdivision Map to clarify the railroad crossing as a "possible/future" re-opening. As such, Alternative 8 reflects conditions with the railroad crossing re-opened, to analyze the possible/future use of the crossing.

- <u>Alternative 8</u>: The proposed action, with re-opening the railroad grade crossing

Next, Alternative 8 is provided to satisfy the Scoping Document's line item about the LIRR crossing's "impacts upon traffic circulation on-site and redistribution of traffic to and from the site." When the Scoping Document was written, re-opening the gated railroad crossing was part of the subdivision application. Gyrodyne has been actively coordinating the proposed re-opening of the railroad crossing. While significant progress has been made in this effort, including support from Stony Brook University, there is still a degree of uncertainty as to when this might be accomplished. Accordingly, Gyrodyne modified the proposed Preliminary Subdivision Map (Appendix J) to clarify the railroad crossing as a "possible/future" re-opening, such that the updated Preliminary Subdivision Map would not result in re-opening the railroad crossing. Alternative 8 considers the off-site impacts if the crossing is potentially re-opened in the future. This would modify traffic distribution for approximately 15% of peak hour trips, allowing a direct connection between Gyrodyne, the Stony Brook R&D Park, and Stony Brook Road while bypassing certain intersections and reducing their Build volumes. The change would shift 28 AM peak hour trips, 41 PM peak hour trips, and 32 Saturday peak hour trips off portions of Route 25A and Stony Brook Road, resulting in slightly enhanced operation at six study intersections that would receive less, or differently-routed, subdivision traffic with the crossing re-opened:

1. Route 25A at Mills Pond Road
2. Route 25A at Stony Brook Road
14. Mills Pond Road Site Access 1
15. Mills Pond Road Site Access 2
16. Route 25A Site Access (future)
17. Stony Brook Road and Development Drive



To summarize the changed distribution:

- Subdivision entering traffic: The crossing lets drivers turn left from Stony Brook Road at Development Drive to avoid Route 25A entirely.
- Subdivision exiting traffic: The crossing lets drivers exit directly to Stony Brook Road/Development Drive without taking Route 25A

- Non-subdivision traffic: The crossing lets drivers travel between Mills Pond Road/Route 25A and Stony Brook Road without taking Route 25A along Gyrodyne's frontage

A potential future re-opened crossing would incur less impact to local intersections than what is shown in this study.

Appendix E: LIRR Grade Crossing Analysis details the crossing's existing conditions, relevant design standards that would apply to re-opening the crossing, the potential traffic volume over the crossing, and the corresponding improvements that may be needed. In summary:

- Short-term daily projected volume ±658 vehicles and ±66 pedestrians/bicyclists
- Longer-term daily projected volume ±920-1,276 vehicles and ±319 pedestrians/bicyclists
- The longer-term numbers are roughly 37%-74% smaller than the existing daily volumes at the four nearest active grade crossings to the subdivision
- ±40 trains per day utilize this railroad track, 30 minutes to several hours apart.
- The crossing has "active control" with automatic gate arms and flashing beacons.
- Gyrodyne does not have access to the crossing area to determine all necessary improvements to re-open the crossing. LIRR's Principal Engineer - Signal Investigations, Standards, and Special Projects performed a preliminary field visit and developed a list: (a) Repair the crossing pads; (b) Clean the approaches to the crossing and weed the old tracks on the south side; (c) Install additional flashers on both sides, facing traffic from the side streets; (d) Trim vegetation on the adjoining properties (mainly the south side); and (e) Install stop lines, pavement edge lines, and roadway signage. In the longer term, the highway grade crossing "case and components" are close to their usable life expectancy and will need full replacement soon. Gyrodyne added to this list, (a) Sufficient streetlight illumination of the crossing; (b) Supplemental "Railroad Crossing" warning signs and signs to prohibit passing lowered railroad gates; and (c) Shorter sidewalk-length gate arms to potentially be added.

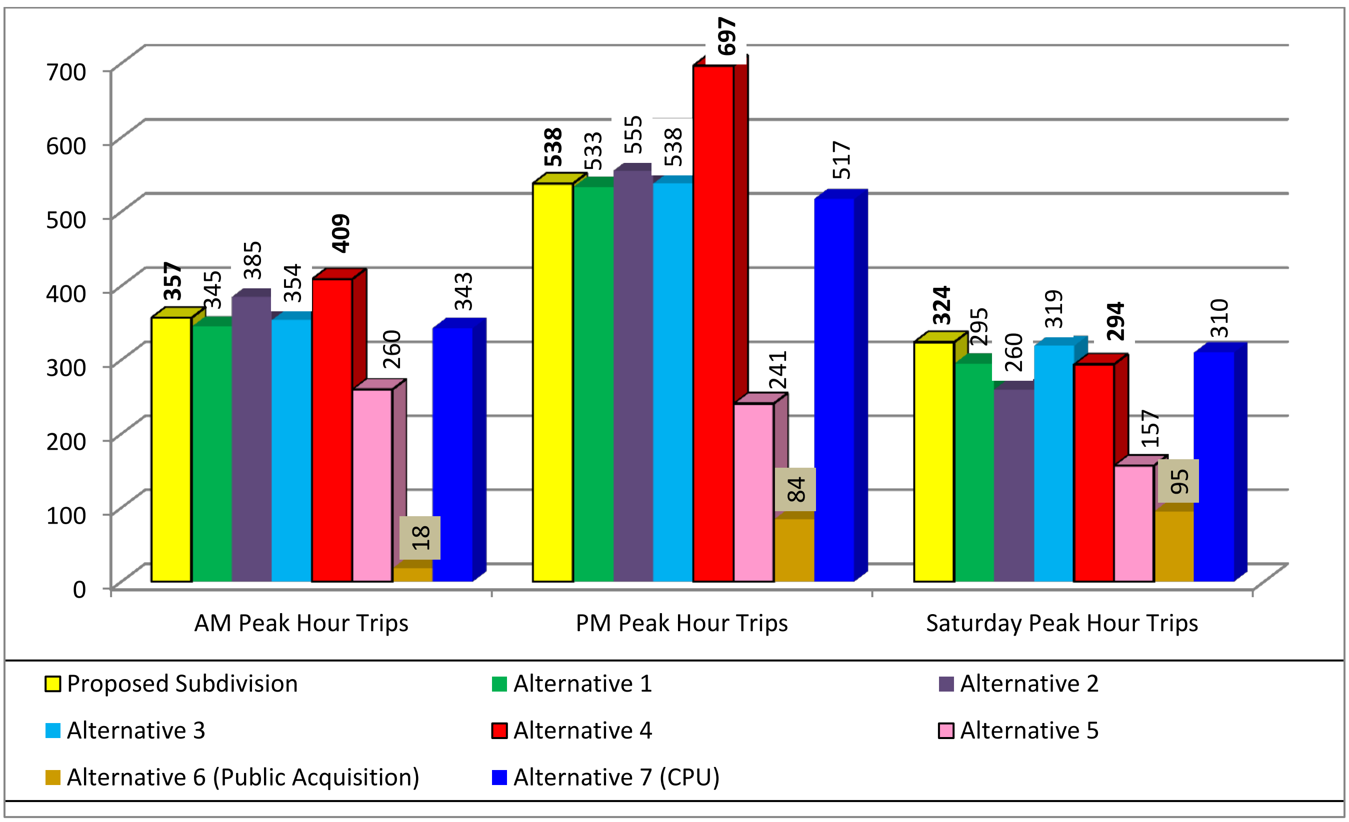
The intent is for the eventual developing entity/entities to rely on this study, the corresponding DEIS, and the Town's SEQR findings to be able to develop individual lots, and if prescribed development thresholds and mitigation measures are complied with, development would not require further SEQR action associated with individual site plans. There are many similar land use mixes that could meet the above criteria; it does not make sense to analyze every possible combination. An example of this type of alternative land use mix and density in compliance with the overall criteria, which would yield similar or fewer environmental impacts to the alternatives herein, is for more assisted living units (280 vs. 220), a smaller hotel (100 rooms vs. 150) and slightly smaller office (128,000 s.f. vs. 130,000): the resulting trip generation, water demand, sanitary demand, etc. would be similar to the proposed subdivision, such that there would be no difference in required traffic mitigation, visual impacts, WWTP design, etc.

The proposed subdivision would generate less off-site traffic than at least one as of right alternative which wouldn't need a subdivision. The medical office alternative (Alternative 4) would not require a subdivision and would generate 15% to 30% more traffic during weekday peak hours. With added site traffic, this alternative (which is not being proposed) would require significantly more off-site traffic mitigation than the proposed subdivision.

Figure 9-2 graphically depicts the relative peak hour trip generation numbers for Alternatives 1 through 7. Alternative 8 has the same number of trips as the Proposed Action.

Based on similar traffic generation, most Alternatives (1-3, 7-8) would have similar or the same impacts as the Proposed Action (and require the same mitigation measures), while Alternatives 4 and 5 (not proposed) would likely require further analysis and additional off-site improvements. Alternative 6 would not incur traffic impacts, with the same trip generation as the No Build scenario. Alternative 7 would generate slightly fewer trips than the Proposed Action; the difference is not large enough to indicate changed off-site mitigation.

Figure 9-2: Alternatives 1-7 Peak Hour Trip Generation



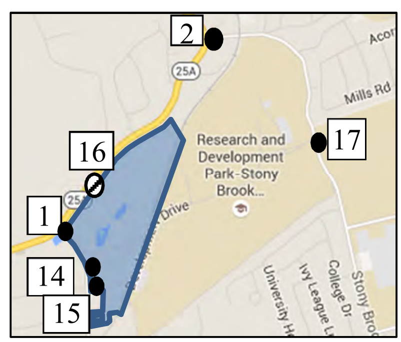
1. Traffic Study Supplement for Additional Alternatives

The Traffic Impact Study includes the first seven of ten alternatives analyzed for the February 2019 DEIS. This Supplement comprises the trip generation numbers associated with each of the ten alternatives in the current DEIS:

- <u>Alternative 1</u>: 100-room hotel, 150,000 s.f. medical office, 150 assisted living units
- <u>Alternative 2</u>: 150,000 s.f. medical office, 50,000 s.f. general office, 192 assisted living units
- <u>Alternative 3</u>: 120-room hotel, 136,000 s.f. medical office, 250 assisted living units
- <u>Alternative 4</u>: 244,000 s.f. medical office uses
- <u>Alternative 5</u>: 382,500 s.f. general light industrial uses
- <u>Alternative 6</u>: a "public acquisition" alternative if the Town or County subdivides, acquires, and preserves the site's vacant area as public open space. Alternative 6 contemplates public acquisition of the areas not currently developed, comprising most of Lots 3 through 9. The resulting public space could be utilized as passive or active recreation.
- <u>Alternative 7 (complies with the unadopted Draft CPU's 50% open space and 300-foot Route 25A buffer, subject to a Suffolk County Health Department variance for the setback of the WWTP expansion area from the LIRR tracks)</u>: 125-room hotel, 128,000 s.f. medical office, 240 assisted living units.
- <u>Alternative 8</u>: The proposed action, with re-opening the railroad grade crossing

  As discussed in Section 9 of the Traffic Study, Gyrodyne modified the proposed Preliminary Subdivision Map to clarify the railroad crossing as a "possible/future" re-opening. If the crossing is re-opened, it would re-distribute 28 AM peak hour trips, 41 PM peak hour trips, and 32 Saturday peak hour trips off portions of Route 25A and Stony Brook Road, resulting in slightly enhanced operation at six study intersections that would receive less, or differently-routed, subdivision traffic with the crossing re-opened:

  1. Route 25A at Mills Pond Road
  2. Route 25A at Stony Brook Road
  14. Mills Pond Road Site Access 1
  15. Mills Pond Road Site Access 2
  16. Route 25A Site Access (future)
  17. Stony Brook Road and Development Drive



A potential future re-opened crossing would incur less impact to local intersections than what is shown in this study.

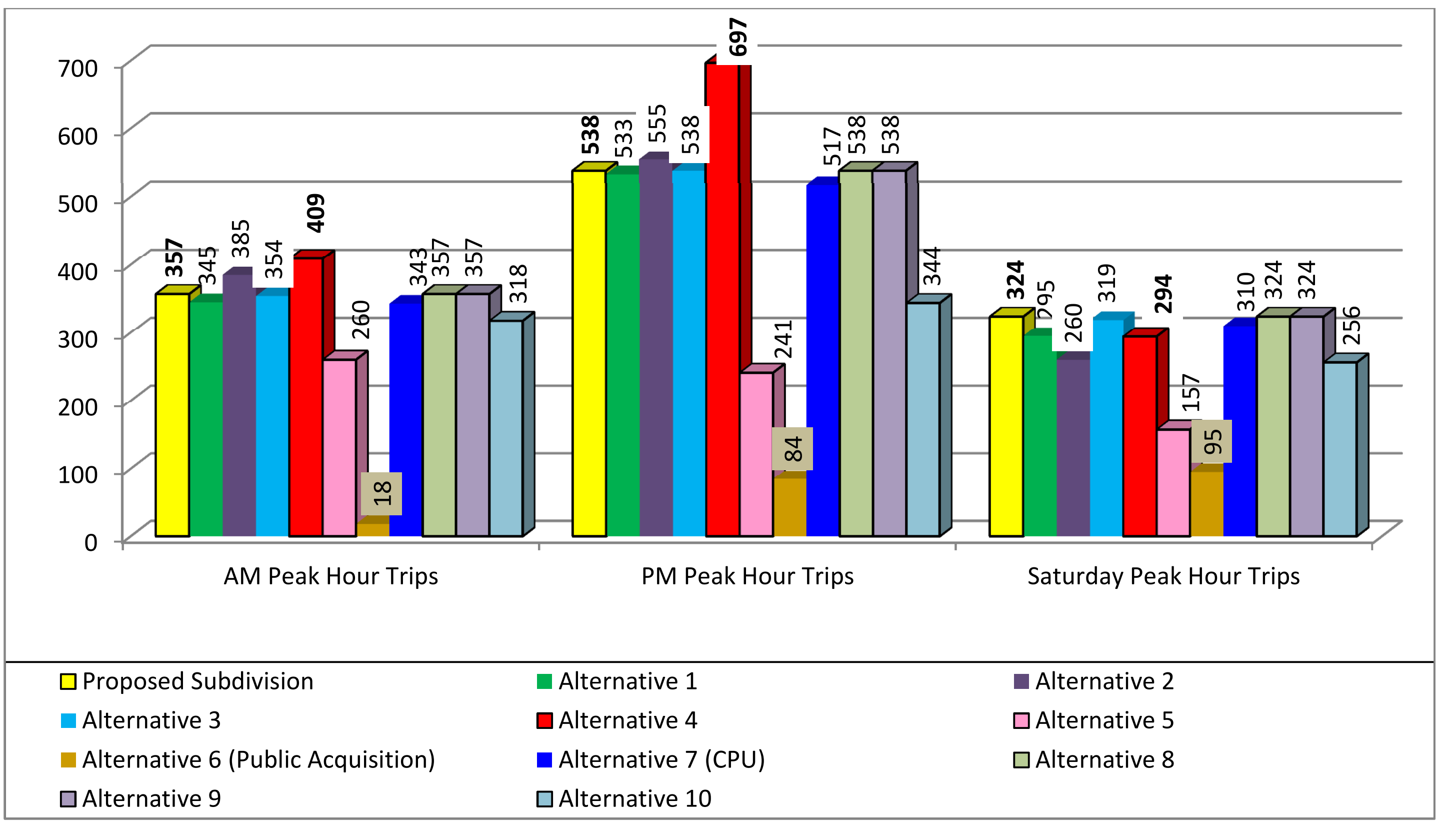
- <u>Alternative 9</u>: The proposed action, with an expanded STP
- <u>Alternative 10</u>: 115-room hotel, 183,150 s.f. of technology/office space, and 280 assisted living units

The proposed subdivision would generate less off-site traffic than at least one as of right alternative which wouldn't need a subdivision. The medical office alternative (Alternative 4) would not require a subdivision and would generate 15% to 30% more traffic during weekday peak hours. With added site traffic, this alternative (which is not being proposed) would require significantly more off-site traffic mitigation than the proposed subdivision.

Supplement Figure 1 graphically depicts the relative peak hour trip generation numbers for Alternatives 1 through 10.

Based on similar traffic generation, most Alternatives (1-3, 7-8) would have similar or the same impacts as the Proposed Action (and require the same mitigation measures), while Alternatives 4 and 5 (not proposed) would likely require further analysis and additional off-site improvements. Alternative 6 would not incur traffic impacts, with the same trip generation as the No Build scenario. Alternative 7 would generate slightly fewer trips than the Proposed Action; the difference is not large enough to indicate changed off-site mitigation. Alternatives 8 and 9 have the same number of trips as the Proposed Action, and would involve the same off-site mitigation. Alternative 10 has noticeably less PM peak hour traffic and could involve less off-site mitigation than the Proposed Action.

Supplement Figure 1: Alternatives 1-10 Peak Hour Trip Generation



APPENDIX A:

LEVEL OF SERVICE DESCRIPTIONS

Level of service is a measure of traffic flow quality, which denotes the average delays that motorists face as they travel through an intersection. A motorist's delay is caused by several factors, including the presence of a traffic control (i.e., a signal or stop sign), geometry, other vehicles on the road, and incidents.

Total delay is the difference between the actual travel time, and the ideal travel time that would happen if there weren't any traffic controls, geometric delays, incidents, or other vehicles on the road. The HCS program only quantifies the "control delay," the portion of total delay attributed to the signal or stop sign. Control delay includes delays due to initial deceleration, stopped time, queue move-up time, and final acceleration.

The level of service (LOS) at **signalized** intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time.

The LOS at **two-way stop controlled** (**TWSC**) intersections depends on the capacity of each minor movement, not for the intersection as a whole. 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 move, and the follow-up time required by each driver in a queue.

The LOS at **All-Way stop controlled** (**AWSC**) intersections is also defined for each minor movement, and depends on the capacity, departure headway, and service time. A movement's delay is a function of the volume-to-capacity (v/c) ratio, service time, and departure headway.

The right of way at an AWSC intersection is controlled by stop signs on every leg of an intersection. Though the driver on the right generally has right of way, actual traffic flow at AWSC intersections generally follows one of two patterns:

1. Vehicles from opposite legs (i.e., northbound and southbound, or eastbound and westbound) arrive close to the same time; this is considered "2-phase" operation.
2. Vehicles from all four legs arrive separately. This is considered "4-phase" operation.

Service time is the time it takes an average vehicle to enter the intersection after stopping, and it depends on the probability that someone is on an opposing leg when a vehicle reaches the stop line. When the opposing legs are empty, a motorist can enter the intersection right after stopping. But if there are one or more vehicles on the opposing legs, the driver must wait for consensus from the other drivers before entering the intersection. The more opposing vehicles there are, the longer the service time will be, although subsequent delay increases get smaller with each additional vehicle. This probability depends on several factors, including the geometry of the intersection, lane configuration, and vehicular volumes.

Levels of service range between LOS A (relatively congestion-free) and LOS F (congested):

Level of Service A indicates very low control delays. 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 signal cycle lengths at signalized intersections. More vehicles stop than for LOS A, causing higher average delays.

APPENDIX A (continued):

LEVEL OF SERVICE DESCRIPTIONS

Level of Service C has higher delays than LOS B. This may result from fair progression and/or longer cycle lengths. Individual cycle failures, where motorists wait through an entire signal cycle, may begin to appear. The number of vehicles stopping is significant, though many still pass through without stopping.

Level of Service D has the influence of congestion becoming more noticeable. This may result from some combination of unfavorable progression, long cycle lengths, and high volume-to-capacity (v/c) ratios. The proportion of stopping vehicles increases, and individual cycle failures are noticeable.

Level of Service E is considered the limit of acceptable delay. This LOS generally indicates poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures occur often.

Level of Service F is considered unacceptable to most drivers. The condition occurs with oversaturation (when arrival flow exceeds the intersection's capacity, denoted by the v/c ratio*) but it may also occur at v/c ratios below 1.0 with many individual cycle failures.

The following conditions are used to determine **Signalized** levels of service:

Average Control Delay (seconds per vehicle)	Level of Service (v/c Ratio)	
	v/c ≤ 1.0	v/c > 1.0
≤ 10.0	Level of Service A	Level of Service F
> 10.0 and ≤ 20.0	Level of Service B	Level of Service F
> 20.0 and ≤ 35.0	Level of Service C	Level of Service F
> 35.0 and ≤ 55.0	Level of Service D	Level of Service F
> 55.0 and ≤ 80.0	Level of Service E	Level of Service F
> 80.0	Level of Service F	Level of Service F

The expectation is that TWSC and AWSC 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 delays are used to determine **Unsignalized** levels of service:

Average Control Delay (seconds per vehicle)	Level of Service (v/c Ratio)	
	v/c ≤ 1.0	v/c > 1.0
≤ 10.0	Level of Service A	Level of Service F
> 10.0 and ≤ 15.0	Level of Service B	Level of Service F
> 15.0 and ≤ 25.0	Level of Service C	Level of Service F
> 25.0 and ≤ 35.0	Level of Service D	Level of Service F
> 35.0 and ≤ 50.0	Level of Service E	Level of Service F
> 50.0	Level of Service F	Level of Service F

** For individual lane groups (not overall approaches or intersections), the HCM automatically defines the signalized level of service as LOS F if the v/c ratio is above 1.0.*

APPENDIX B:

EXISTING

LEVEL OF SERVICE/SYNCHRO WORKSHEETS

1. Route 25A at Mills Pond Road
2. Route 25A at Stony Brook Road
3. Route 25A at Lake Avenue
4. Route 25A at Moriches Road
5. Moriches Road at Lake Avenue
6. Moriches Road at Mills Pond Road
7. Moriches Road at Woodlawn Avenue
8. Route 347 at Moriches Road
9. Route 25A at Main Street
10. Stony Brook Road at South Drive
11. Stony Brook Road at Oxhead Road
12. Stony Brook Road at Hallock Road
13. Stony Brook Road at Route 347
17. Stony Brook Road at Development Drive (north intersection, un-gated)

1: Mills Pond Road & NYS Route 25A
HCM 6th TWSC

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	918	46	38	882	12	85
Future Vol, veh/h	918	46	38	882	12	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	966	48	40	928	13	89

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1014	0	1998	990
Stage 1	-	-	-	-	990	-
Stage 2	-	-	-	-	1008	-
Critical Hdwy	-	-	4.11	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	688	-	67	302
Stage 1	-	-	-	-	363	-
Stage 2	-	-	-	-	356	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	688	-	63	302
Mov Cap-2 Maneuver	-	-	-	-	63	-
Stage 1	-	-	-	-	342	-
Stage 2	-	-	-	-	356	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	28.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	63	302	-	-	688	-
HCM Lane V/C Ratio	0.201	0.296	-	-	0.058	-
HCM Control Delay (s)	75.9	21.9	-	-	10.6	-
HCM Lane LOS	F	C	-	-	B	-
HCM 95th %tile Q(veh)	0.7	1.2	-	-	0.2	-

2: 25A & Stony Brook Road
HCM 6th TWSC

Intersection	
Int Delay, s/veh	11.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	129	0	626	363	0	789
Future Vol, veh/h	129	0	626	363	0	789
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Free	-	Free
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	136	0	659	382	0	831

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1490	-	0	-	-	-
Stage 1	659	-	-	-	-	-
Stage 2	831	-	-	-	-	-
Critical Hdwy	6.42	-	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	-	-
Pot Cap-1 Maneuver	136	0	-	0	0	-
Stage 1	515	0	-	0	0	-
Stage 2	428	0	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	136	-	-	-	-	-
Mov Cap-2 Maneuver	136	-	-	-	-	-
Stage 1	515	-	-	-	-	-
Stage 2	428	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	140.2	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	136	-
HCM Lane V/C Ratio	-	0.998	-
HCM Control Delay (s)	-	140.2	-
HCM Lane LOS	-	F	-
HCM 95th %tile Q(veh)	-	7.1	-

22: 25A & Stony Brook Rd WB Right
HCM 6th TWSC

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	101	626	0	97	789
Future Vol, veh/h	0	101	626	0	97	789
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	120	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	106	659	0	102	831

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	659	0	-	659	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	0	464	-	0	929	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	464	-	-	929	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.1	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	464	929	-
HCM Lane V/C Ratio	-	0.229	0.11	-
HCM Control Delay (s)	-	15.1	9.4	-
HCM Lane LOS	-	C	A	-
HCM 95th %tile Q(veh)	-	0.9	0.4	-

3: Lake Avenue/Fire Dept & Route 25A
HCM 6th TWSC

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	845	0	187	824	0	0	0	195	0	0	0
Future Vol, veh/h	0	845	0	187	824	0	0	0	195	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	250	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	98	98	98	98	92	98	92	98	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	862	0	191	841	0	0	0	199	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	841	0	0	862	0	0	-	2085	862	2185	2085	841
Stage 1	-	-	-	-	-	-	-	862	-	1223	1223	-
Stage 2	-	-	-	-	-	-	-	1223	-	962	862	-
Critical Hdwy	4.12	-	-	4.12	-	-	-	5	5	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	-	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	-	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	794	-	-	780	-	0	0	128	475	33	53	365
Stage 1	-	-	-	-	-	0	0	372	-	219	252	-
Stage 2	-	-	-	-	-	0	0	252	-	308	372	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	794	-	-	780	-	-	-	97	475	16	40	365
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	97	-	16	40	-
Stage 1	-	-	-	-	-	-	-	372	-	219	190	-
Stage 2	-	-	-	-	-	-	-	190	-	179	372	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	2.1	17.9	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	475	794	-	-	780	-	-
HCM Lane V/C Ratio	-	0.419	-	-	-	0.245	-	-
HCM Control Delay (s)	0	17.9	0	-	-	11.1	-	0
HCM Lane LOS	A	C	A	-	-	B	-	A
HCM 95th %tile Q(veh)	-	2	0	-	-	1	-	-

4: Route 25A & Moriches Road
HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	61	112	12	174	75	0	12	793	96	0	789	34
Future Volume (veh/h)	61	112	12	174	75	0	12	793	96	0	789	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	0	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	64	118	13	183	79	0	13	835	101	0	831	36
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	0	2	2	2	0	2	2
Cap, veh/h	461	499	55	416	564	0	57	988	879	0	987	43
Arrive On Green	0.30	0.30	0.29	0.30	0.30	0.00	0.55	0.55	0.55	0.00	0.55	0.55
Sat Flow, veh/h	1320	1655	182	1259	1870	0	8	1781	1585	0	1779	77
Grp Volume(v), veh/h	64	0	131	183	79	0	848	0	101	0	0	867
Grp Sat Flow(s),veh/h/ln	1320	0	1838	1259	1870	0	1789	0	1585	0	0	1856
Q Serve(g_s), s	2.6	0.0	3.7	8.9	2.1	0.0	1.2	0.0	2.1	0.0	0.0	27.2
Cycle Q Clear(g_c), s	4.7	0.0	3.7	12.6	2.1	0.0	28.3	0.0	2.1	0.0	0.0	27.2
Prop In Lane	1.00		0.10	1.00		0.00	0.02		1.00	0.00		0.04
Lane Grp Cap(c), veh/h	461	0	554	416	564	0	1045	0	879	0	0	1030
V/C Ratio(X)	0.14	0.00	0.24	0.44	0.14	0.00	0.81	0.00	0.11	0.00	0.00	0.84
Avail Cap(c_a), veh/h	556	0	686	506	699	0	1708	0	1457	0	0	1707
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	19.4	0.0	18.3	23.0	17.7	0.0	12.7	0.0	7.4	0.0	0.0	13.0
Incr Delay (d2), s/veh	0.1	0.0	0.2	0.5	0.1	0.0	2.2	0.0	0.1	0.0	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	1.5	2.5	0.9	0.0	8.5	0.0	0.6	0.0	0.0	9.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.5	0.0	18.5	23.6	17.8	0.0	14.9	0.0	7.5	0.0	0.0	15.8
LnGrp LOS	B	A	B	C	B	A	B	A	A	A	A	B
Approach Vol, veh/h		195			262			949			867	
Approach Delay, s/veh		18.8			21.8			14.1			15.8	
Approach LOS		B			C			B			B	

Timer - Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		44.6		25.0		44.6		25.0
Change Period (Y+Rc), s		6.0		5.0		6.0		5.0
Max Green Setting (Gmax), s		64.0		25.0		64.0		25.0
Max Q Clear Time (g_c+I1), s		30.3		6.7		29.2		14.6
Green Ext Time (p_c), s		8.3		0.5		7.6		0.6

Intersection Summary	
HCM 6th Ctrl Delay	16.0
HCM 6th LOS	B

5: Lake Avenue & Moriches Road
HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	85	147	21	145	29	95	171	12	14	179	0
Future Volume (veh/h)	1	85	147	21	145	29	95	171	12	14	179	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1945	1945	1945	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	92	0	23	158	32	103	186	13	15	195	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	100	578		149	548	512	684	817	57	679	885	0
Arrive On Green	0.31	0.31	0.00	0.31	0.31	0.31	0.47	0.47	0.41	0.47	0.47	0.00
Sat Flow, veh/h	7	1860	1585	126	1764	1648	1188	1728	121	1183	1870	0
Grp Volume(v), veh/h	93	0	0	181	0	32	103	0	199	15	195	0
Grp Sat Flow(s),veh/h/ln	1867	0	1585	1890	0	1648	1188	0	1849	1183	1870	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.5	2.1	0.0	2.4	0.3	2.3	0.0
Cycle Q Clear(g_c), s	1.3	0.0	0.0	2.6	0.0	0.5	4.3	0.0	2.4	2.7	2.3	0.0
Prop In Lane	0.01		1.00	0.13		1.00	1.00		0.07	1.00		0.00
Lane Grp Cap(c), veh/h	678	0		697	0	512	684	0	874	679	885	0
V/C Ratio(X)	0.14	0.00		0.26	0.00	0.06	0.15	0.00	0.23	0.02	0.22	0.00
Avail Cap(c_a), veh/h	1256	0		1270	0	1025	1277	0	1799	1270	1820	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	9.2	0.0	0.0	9.7	0.0	9.0	7.0	0.0	5.8	6.5	5.7	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.8	0.0	0.1	0.4	0.0	0.6	0.1	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.3	0.0	0.0	9.9	0.0	9.0	7.1	0.0	5.9	6.6	5.9	0.0
LnGrp LOS	A	A		A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		93	A		213			302			210	
Approach Delay, s/veh		9.3			9.8			6.3			5.9	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	21.5	15.5	21.5	15.5
Change Period (Y+Rc), s	* 6.5	5.5	* 6.5	5.5
Max Green Setting (Gmax), s	* 34	21.5	* 34	21.5
Max Q Clear Time (g_c+I1), s	6.3	3.3	4.7	4.6
Green Ext Time (p_c), s	1.1	0.2	0.7	0.6

Intersection Summary	
HCM 6th Ctrl Delay	7.5
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

6: Moriches Road & Evon Lane/Mills Pond Road
HCM 6th AWSC

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			↰	↱		✣			✣	
Traffic Vol, veh/h	1	8	4	102	22	15	1	126	113	8	115	1
Future Vol, veh/h	1	8	4	102	22	15	1	126	113	8	115	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	9	4	109	23	16	1	134	120	9	122	1
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	8.1	9.8	9.1	8.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	8%	82%	0%	6%
Vol Thru, %	53%	62%	18%	0%	93%
Vol Right, %	47%	31%	0%	100%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	240	13	124	15	124
LT Vol	1	1	102	0	8
Through Vol	126	8	22	0	115
RT Vol	113	4	0	15	1
Lane Flow Rate	255	14	132	16	132
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.303	0.019	0.213	0.021	0.171
Departure Headway (Hd)	4.266	4.953	5.815	4.695	4.675
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	843	718	616	759	766
Service Time	2.292	3.012	3.564	2.443	2.708
HCM Lane V/C Ratio	0.302	0.019	0.214	0.021	0.172
HCM Control Delay	9.1	8.1	10.1	7.5	8.7
HCM Lane LOS	A	A	B	A	A
HCM 95th-tile Q	1.3	0.1	0.8	0.1	0.6

7: Woodlawn Avenue/Gated & Moriches Road
HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	0	227	0	0	0	207	249	0	0	214	40
Future Volume (veh/h)	41	0	227	0	0	0	207	249	0	0	214	40
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870				1870	1945	0	0	1870	1870
Adj Flow Rate, veh/h	45	0	247				225	271	0	0	233	43
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2				2	2	0	0	2	2
Cap, veh/h	256	0	504				709	1247	0	0	552	102
Arrive On Green	0.14	0.00	0.14				0.17	0.64	0.00	0.00	0.36	0.36
Sat Flow, veh/h	1781	0	1585				1781	1945	0	0	1536	283
Grp Volume(v), veh/h	45	0	247				225	271	0	0	0	276
Grp Sat Flow(s),veh/h/ln	1781	0	1585				1781	1945	0	0	0	1819
Q Serve(g_s), s	1.2	0.0	7.0				3.5	3.2	0.0	0.0	0.0	6.4
Cycle Q Clear(g_c), s	1.2	0.0	7.0				3.5	3.2	0.0	0.0	0.0	6.4
Prop In Lane	1.00		1.00				1.00		0.00	0.00		0.16
Lane Grp Cap(c), veh/h	256	0	504				709	1247	0	0	0	653
V/C Ratio(X)	0.18	0.00	0.49				0.32	0.22	0.00	0.00	0.00	0.42
Avail Cap(c_a), veh/h	256	0	504				719	2026	0	0	0	1372
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	20.9	0.0	15.4				6.7	4.2	0.0	0.0	0.0	13.5
Incr Delay (d2), s/veh	0.3	0.0	0.7				0.3	0.1	0.0	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	6.5				1.0	0.9	0.0	0.0	0.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.3	0.0	16.1				7.0	4.3	0.0	0.0	0.0	13.9
LnGrp LOS	C	A	B				A	A	A	A	A	B
Approach Vol, veh/h		292						496			276	
Approach Delay, s/veh		16.9						5.5			13.9	
Approach LOS		B						A			B	

Timer - Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		41.7		14.0	15.7	26.0		
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		
Max Green Setting (Gmax), s		58.0		8.0	10.0	42.0		
Max Q Clear Time (g_c+I1), s		5.2		9.0	5.5	8.4		
Green Ext Time (p_c), s		1.1		0.0	0.3	1.1		

Intersection Summary			
HCM 6th Ctrl Delay			10.8
HCM 6th LOS			B

8: Moriches Road & NYS 347
HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	1405	20	21	2123	301	3	27	10	247	55	69
Future Volume (veh/h)	84	1405	20	21	2123	301	3	27	10	247	55	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	1448	21	22	2189	0	3	28	10	255	57	71
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	112	3122	937	47	2870		242	94	101	342	101	185
Arrive On Green	0.06	0.61	0.59	0.01	0.56	0.00	0.07	0.05	0.05	0.10	0.05	0.05
Sat Flow, veh/h	1781	5106	1585	3456	5106	1585	3456	1870	1585	3456	1870	1585
Grp Volume(v), veh/h	87	1448	21	22	2189	0	3	28	10	255	57	71
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1728	1702	1585	1728	1870	1585	1728	1870	1585
Q Serve(g_s), s	4.8	15.3	0.3	0.6	32.7	0.0	0.1	1.4	0.6	7.2	3.0	2.9
Cycle Q Clear(g_c), s	4.8	15.3	0.3	0.6	32.7	0.0	0.1	1.4	0.6	7.2	3.0	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	112	3122	937	47	2870		242	94	101	342	101	185
V/C Ratio(X)	0.77	0.46	0.02	0.46	0.76		0.01	0.30	0.10	0.75	0.57	0.38
Avail Cap(c_a), veh/h	268	4612	1400	867	5140		624	460	412	624	460	490
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.0	10.5	1.9	48.8	16.7	0.0	43.1	45.6	43.9	43.7	46.0	20.7
Incr Delay (d2), s/veh	10.7	0.1	0.0	6.9	0.4	0.0	0.0	1.8	0.4	3.3	4.9	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	4.7	0.2	0.3	10.8	0.0	0.0	0.7	0.2	3.2	1.5	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.7	10.6	1.9	55.7	17.2	0.0	43.1	47.4	44.4	46.9	50.9	21.9
LnGrp LOS	E	B	A	E	B		D	D	D	D	D	C
Approach Vol, veh/h		1556			2211	A		41			383	
Approach Delay, s/veh		13.1			17.5			46.3			42.9	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.8	12.5	6.4	65.9	14.5	12.9	11.3	61.0
Change Period (Y+Rc), s	5.0	7.5	5.0	7.0	7.5	* 7.5	5.0	* 7
Max Green Setting (Gmax), s	18.0	24.5	25.0	88.0	18.0	* 25	15.0	* 98
Max Q Clear Time (g_c+I1), s	9.2	3.4	2.6	17.3	2.1	5.0	6.8	34.7
Green Ext Time (p_c), s	0.7	0.1	0.0	8.9	0.0	0.4	0.1	19.3

Intersection Summary	
HCM 6th Ctrl Delay	18.5
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

9: NYS 25A & Main Street
HCM 6th Signalized Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	629	52	162	585	65	247
Future Volume (veh/h)	629	52	162	585	65	247
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1945	1870	1945	1870	1870
Adj Flow Rate, veh/h	662	0	171	616	68	260
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	735		493	1115	306	729
Arrive On Green	0.41	0.00	0.26	0.26	0.04	0.39
Sat Flow, veh/h	1781	1648	1870	1648	1781	1870
Grp Volume(v), veh/h	662	0	171	616	68	260
Grp Sat Flow(s),veh/h/ln	1781	1648	1870	1648	1781	1870
Q Serve(g_s), s	24.6	0.0	5.3	13.7	1.9	7.0
Cycle Q Clear(g_c), s	24.6	0.0	5.3	13.7	1.9	7.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	735		493	1115	306	729
V/C Ratio(X)	0.90		0.35	0.55	0.22	0.36
Avail Cap(c_a), veh/h	980		686	1285	332	950
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.4	0.0	21.2	5.9	16.8	15.3
Incr Delay (d2), s/veh	9.0	0.0	0.4	0.4	0.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.0	0.0	2.2	10.5	0.8	2.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	28.5	0.0	21.6	6.4	17.2	15.6
LnGrp LOS	C		C	A	B	B
Approach Vol, veh/h	662	A	787			328
Approach Delay, s/veh	28.5		9.7			15.9
Approach LOS	C		A			B

Timer - Assigned Phs	1	2	6	8
Phs Duration (G+Y+Rc), s	9.0	26.7	35.6	35.3
Change Period (Y+Rc), s	6.0	8.0	8.0	6.0
Max Green Setting (Gmax), s	4.0	26.0	36.0	39.0
Max Q Clear Time (g_c+I1), s	3.9	15.7	9.0	26.6
Green Ext Time (p_c), s	0.0	3.0	1.0	2.6

Intersection Summary	
HCM 6th Ctrl Delay	17.8
HCM 6th LOS	B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

10: Stony Brook Road & South Drive
HCM 6th Signalized Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	80	89	286	705	325	160
Future Volume (veh/h)	80	89	286	705	325	160
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	97	311	766	353	174
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	526	468	1003	850	296	106
Arrive On Green	0.30	0.30	0.54	0.54	0.54	0.54
Sat Flow, veh/h	1781	1585	1870	1585	381	199
Grp Volume(v), veh/h	87	97	311	766	527	0
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	580	0
Q Serve(g_s), s	2.4	3.0	6.0	28.3	29.0	0.0
Cycle Q Clear(g_c), s	2.4	3.0	6.0	28.3	35.0	0.0
Prop In Lane	1.00	1.00		1.00	0.67	
Lane Grp Cap(c), veh/h	526	468	1003	850	403	0
V/C Ratio(X)	0.17	0.21	0.31	0.90	1.31	0.00
Avail Cap(c_a), veh/h	982	874	1003	850	403	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.0	17.3	8.4	13.6	21.2	0.0
Incr Delay (d2), s/veh	0.1	0.2	0.2	12.7	155.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.0	2.1	11.2	23.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.2	17.5	8.6	26.3	176.9	0.0
LnGrp LOS	B	B	A	C	F	A
Approach Vol, veh/h	184		1077			527
Approach Delay, s/veh	17.3		21.2			176.9
Approach LOS	B		C			F

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	41.0	41.0	24.3
Change Period (Y+Rc), s	6.0	6.0	5.0
Max Green Setting (Gmax), s	35.0	35.0	36.0
Max Q Clear Time (g_c+I1), s	30.3	37.0	5.0
Green Ext Time (p_c), s	2.3	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	66.7
HCM 6th LOS	E

11: Oxhead Road & Stony Brook Road
HCM 6th Signalized Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	40	173	825	35	88	170
Future Volume (veh/h)	40	173	825	35	88	170
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1976	1976	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	188	897	38	96	185
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	61	269	1069	45	161	272
Arrive On Green	0.20	0.20	0.60	0.60	0.60	0.60
Sat Flow, veh/h	312	1365	1781	75	120	453
Grp Volume(v), veh/h	232	0	0	935	281	0
Grp Sat Flow(s),veh/h/ln	1684	0	0	1857	572	0
Q Serve(g_s), s	6.9	0.0	0.0	22.0	6.3	0.0
Cycle Q Clear(g_c), s	6.9	0.0	0.0	22.0	28.3	0.0
Prop In Lane	0.19	0.81		0.04	0.34	
Lane Grp Cap(c), veh/h	332	0	0	1114	433	0
V/C Ratio(X)	0.70	0.00	0.00	0.84	0.65	0.00
Avail Cap(c_a), veh/h	435	0	0	1646	743	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.3	0.0	0.0	8.7	9.2	0.0
Incr Delay (d2), s/veh	3.3	0.0	0.0	2.6	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.0	6.7	1.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.6	0.0	0.0	11.4	10.8	0.0
LnGrp LOS	C	A	A	B	B	A
Approach Vol, veh/h	232		935			281
Approach Delay, s/veh	23.6		11.4			10.8
Approach LOS	C		B			B

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	38.5	38.5	15.7
Change Period (Y+Rc), s	6.0	6.0	5.0
Max Green Setting (Gmax), s	48.0	48.0	14.0
Max Q Clear Time (g_c+I1), s	24.0	30.3	8.9
Green Ext Time (p_c), s	3.8	2.2	0.3

Intersection Summary	
HCM 6th Ctrl Delay	13.2
HCM 6th LOS	B

12: Hallock Road & Stony Brook Road
HCM 6th Signalized Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	111	13	14	729	277	30
Future Volume (veh/h)	111	13	14	729	277	30
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	114	13	14	752	286	31
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	303	270	619	976	865	94
Arrive On Green	0.17	0.17	0.52	0.52	0.52	0.52
Sat Flow, veh/h	1781	1585	1063	1870	1658	180
Grp Volume(v), veh/h	114	13	14	752	0	317
Grp Sat Flow(s),veh/h/ln	1781	1585	1063	1870	0	1838
Q Serve(g_s), s	2.4	0.3	0.3	13.6	0.0	4.2
Cycle Q Clear(g_c), s	2.4	0.3	4.5	13.6	0.0	4.2
Prop In Lane	1.00	1.00	1.00			0.10
Lane Grp Cap(c), veh/h	303	270	619	976	0	959
V/C Ratio(X)	0.38	0.05	0.02	0.77	0.00	0.33
Avail Cap(c_a), veh/h	380	338	1322	2214	0	2175
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.5	14.7	7.1	8.1	0.0	5.8
Incr Delay (d2), s/veh	0.8	0.1	0.0	1.3	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.1	0.1	3.8	0.0	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.3	14.7	7.2	9.4	0.0	6.0
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	127			766	317	
Approach Delay, s/veh	16.1			9.4	6.0	
Approach LOS	B			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		28.0		14.2		28.0
Change Period (Y+Rc), s		6.0		8.0		6.0
Max Green Setting (Gmax), s		50.0		8.0		50.0
Max Q Clear Time (g_c+I1), s		15.6		4.4		6.2
Green Ext Time (p_c), s		6.5		0.1		2.1

Intersection Summary			
HCM 6th Ctrl Delay			9.2
HCM 6th LOS			A

13: NYS 347 & Stony Brook Road
HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	420	1358	32	83	2330	113	62	196	131	162	78	128
Future Volume (veh/h)	420	1358	32	83	2330	113	62	196	131	162	78	128
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1945	1870	1870	1870	1870	1870	1945	1870	1870	1870
Adj Flow Rate, veh/h	433	1400	33	86	2402	116	64	202	135	167	80	132
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	511	1542	693	276	2320	699	308	319	264	272	412	333
Arrive On Green	0.15	0.43	0.42	0.15	0.45	0.44	0.04	0.17	0.16	0.09	0.22	0.21
Sat Flow, veh/h	3456	3554	1648	1781	5106	1585	1781	1870	1648	1781	1870	1585
Grp Volume(v), veh/h	433	1400	33	86	2402	116	64	202	135	167	80	132
Grp Sat Flow(s),veh/h/ln	1728	1777	1648	1781	1702	1585	1781	1870	1648	1781	1870	1585
Q Serve(g_s), s	18.3	55.1	1.4	6.4	68.0	6.6	4.5	15.0	8.0	11.4	5.2	10.7
Cycle Q Clear(g_c), s	18.3	55.1	1.4	6.4	68.0	6.6	4.5	15.0	8.0	11.4	5.2	10.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	511	1542	693	276	2320	699	308	319	264	272	412	333
V/C Ratio(X)	0.85	0.91	0.05	0.31	1.04	0.17	0.21	0.63	0.51	0.61	0.19	0.40
Avail Cap(c_a), veh/h	1039	1709	771	488	2320	699	402	369	308	313	412	333
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.1	39.6	15.6	56.2	40.8	25.2	49.6	57.8	29.1	45.9	47.5	50.9
Incr Delay (d2), s/veh	4.0	7.1	0.0	0.6	28.6	0.1	0.3	2.8	1.5	2.8	0.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	24.3	0.7	2.9	32.9	2.5	2.0	7.4	4.6	5.3	2.5	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.1	46.6	15.6	56.8	69.5	25.4	49.9	60.6	30.7	48.6	47.8	51.7
LnGrp LOS	E	D	B	E	F	C	D	E	C	D	D	D
Approach Vol, veh/h		1866			2604			401			379	
Approach Delay, s/veh		50.6			67.1			48.8			49.5	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.6	30.0	30.2	69.9	12.1	37.5	27.1	73.0
Change Period (Y+Rc), s	6.0	6.0	7.0	* 7	6.0	6.0	5.0	7.0
Max Green Setting (Gmax), s	17.0	28.0	41.0	* 70	14.0	31.0	45.0	66.0
Max Q Clear Time (g_c+I1), s	13.4	17.0	8.4	57.1	6.5	12.7	20.3	70.0
Green Ext Time (p_c), s	0.2	1.0	0.3	5.8	0.1	0.8	1.9	0.0

Intersection Summary	
HCM 6th Ctrl Delay	58.6
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

17: Development Drive & Stony Brook Road
HCM 6th TWSC

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	30	120	207	445	36
Future Vol, veh/h	10	30	120	207	445	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	260	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	32	129	223	478	39

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	979	498	517	0	-	0
Stage 1	498	-	-	-	-	-
Stage 2	481	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	277	572	1049	-	-	-
Stage 1	611	-	-	-	-	-
Stage 2	622	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	238	572	1049	-	-	-
Mov Cap-2 Maneuver	238	-	-	-	-	-
Stage 1	525	-	-	-	-	-
Stage 2	622	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14	3.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1049	-	238	572	-	-
HCM Lane V/C Ratio	0.123	-	0.045	0.056	-	-
HCM Control Delay (s)	8.9	0	20.8	11.7	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.4	-	0.1	0.2	-	-

21: Stony Brook Road & Stony Brook Rd WB Right
HCM 6th TWSC

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑	↱		↰	
Traffic Vol, veh/h	0	363	129	101	97	0
Future Vol, veh/h	0	363	129	101	97	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	382	136	106	102	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	571	-
Stage 1	-	-	-	-	189	-
Stage 2	-	-	-	-	382	-
Critical Hdwy	-	-	-	-	6.42	-
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	-
Pot Cap-1 Maneuver	0	-	-	-	482	0
Stage 1	0	-	-	-	843	0
Stage 2	0	-	-	-	690	0
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	482	-
Mov Cap-2 Maneuver	-	-	-	-	482	-
Stage 1	-	-	-	-	843	-
Stage 2	-	-	-	-	690	-

Approach	EB	WB	SE
HCM Control Delay, s	0	0	14.5
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SELn1
Capacity (veh/h)	-	-	-	482
HCM Lane V/C Ratio	-	-	-	0.212
HCM Control Delay (s)	-	-	-	14.5
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.8

HCM 6th TWSC
1: Mills Pond Road & NYS Route 25A

Intersection	
Int Delay, s/veh	13.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1093	51	97	901	39	148
Future Vol, veh/h	1093	51	97	901	39	148
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	1151	54	102	948	41	156

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1205	0	2330	1178
Stage 1	-	-	-	-	1178	-
Stage 2	-	-	-	-	1152	-
Critical Hdwy	-	-	4.11	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	583	-	~ 41	235
Stage 1	-	-	-	-	295	-
Stage 2	-	-	-	-	304	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	583	-	~ 26	235
Mov Cap-2 Maneuver	-	-	-	-	~ 26	-
Stage 1	-	-	-	-	186	-
Stage 2	-	-	-	-	304	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	164.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	26	235	-	-	583	-
HCM Lane V/C Ratio	1.579	0.663	-	-	0.175	-
HCM Control Delay (s)	$ 613.4	46.1	-	-	12.5	0
HCM Lane LOS	F	E	-	-	B	A
HCM 95th %tile Q(veh)	5	4.2	-	-	0.6	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

HCM 6th TWSC
2: 25A & Stony Brook Road

Intersection	
Int Delay, s/veh	13.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	226	0	919	316	0	785
Future Vol, veh/h	226	0	919	316	0	785
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Free	-	Free
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	233	0	947	326	0	809

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1756	-	0	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	809	-	-	-	-	-
Critical Hdwy	6.42	-	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	-	-
Pot Cap-1 Maneuver	~ 93	0	-	0	0	-
Stage 1	377	0	-	0	0	-
Stage 2	438	0	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	~ 93	-	-	-	-	-
Mov Cap-2 Maneuver	~ 227	-	-	-	-	-
Stage 1	377	-	-	-	-	-
Stage 2	438	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	112.6	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	227	-
HCM Lane V/C Ratio	-	1.026	-
HCM Control Delay (s)	-	112.6	-
HCM Lane LOS	-	F	-
HCM 95th %tile Q(veh)	-	9.7	-

Notes
~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th TWSC
3: Lake Avenue/Fire Dept & Route 25A

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1001	10	221	839	0	0	0	293	0	0	0
Future Vol, veh/h	0	1001	10	221	839	0	0	0	293	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	250	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1088	11	240	912	0	0	0	318	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	912	0	0	1099	0	0	-	2486	1094	2645	2491	912
Stage 1	-	-	-	-	-	-	-	1094	-	1392	1392	-
Stage 2	-	-	-	-	-	-	-	1392	-	1253	1099	-
Critical Hdwy	4.12	-	-	4.12	-	-	-	5	5	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	-	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	-	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	747	-	-	635	-	0	0	84	377	15	29	332
Stage 1	-	-	-	-	-	0	0	290	-	176	209	-
Stage 2	-	-	-	-	-	0	0	209	-	211	288	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	747	-	-	635	-	-	-	52	377	2	18	332
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	52	-	2	18	-
Stage 1	-	-	-	-	-	-	-	290	-	176	130	-
Stage 2	-	-	-	-	-	-	-	130	-	33	288	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	2.9	49.3	0
HCM LOS			E	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	377	747	-	-	635	-	-
HCM Lane V/C Ratio	-	0.845	-	-	-	0.378	-	-
HCM Control Delay (s)	0	49.3	0	-	-	14.1	-	0
HCM Lane LOS	A	E	A	-	-	B	-	A
HCM 95th %tile Q(veh)	-	7.9	0	-	-	1.8	-	-

HCM 6th Signalized Intersection Summary
4: Route 25A & Moriches Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	92	126	8	166	128	0	22	910	179	0	804	50
Future Volume (veh/h)	92	126	8	166	128	0	22	910	179	0	804	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	0	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	97	133	8	175	135	0	23	958	188	0	846	53
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	0	2	2	2	0	2	2
Cap, veh/h	333	428	26	327	459	0	62	1135	978	0	1099	69
Arrive On Green	0.25	0.25	0.23	0.25	0.25	0.00	0.62	0.63	0.62	0.00	0.63	0.62
Sat Flow, veh/h	1254	1746	105	1248	1870	0	18	1799	1585	0	1742	109
Grp Volume(v), veh/h	97	0	141	175	135	0	981	0	188	0	0	899
Grp Sat Flow(s),veh/h/ln	1254	0	1851	1248	1870	0	1817	0	1585	0	0	1851
Q Serve(g_s), s	5.0	0.0	4.5	9.7	4.3	0.0	6.5	0.0	3.7	0.0	0.0	25.4
Cycle Q Clear(g_c), s	9.2	0.0	4.5	14.2	4.3	0.0	31.9	0.0	3.7	0.0	0.0	25.4
Prop In Lane	1.00		0.06	1.00		0.00	0.02		1.00	0.00		0.06
Lane Grp Cap(c), veh/h	333	0	454	327	459	0	1172	0	978	0	0	1168
V/C Ratio(X)	0.29	0.00	0.31	0.53	0.29	0.00	0.84	0.00	0.19	0.00	0.00	0.77
Avail Cap(c_a), veh/h	473	0	661	467	668	0	1640	0	1394	0	0	1653
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	26.1	0.0	22.5	28.3	22.3	0.0	10.7	0.0	6.0	0.0	0.0	9.7
Incr Delay (d2), s/veh	0.4	0.0	0.3	1.0	0.3	0.0	3.3	0.0	0.1	0.0	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	1.9	2.8	1.8	0.0	9.8	0.0	0.9	0.0	0.0	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.5	0.0	22.7	29.3	22.6	0.0	14.0	0.0	6.2	0.0	0.0	11.5
LnGrp LOS	C	A	C	C	C	A	B	A	A	A	A	B
Approach Vol, veh/h		238			310			1169			899	
Approach Delay, s/veh		24.3			26.4			12.7			11.5	
Approach LOS		C			C			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		50.9		21.9		50.9		21.9				
Change Period (Y+Rc), s		6.0		5.0		6.0		5.0				
Max Green Setting (Gmax), s		64.0		25.0		64.0		25.0				
Max Q Clear Time (g_c+I1), s		33.9		11.2		27.4		16.2				
Green Ext Time (p_c), s		11.1		0.5		8.2		0.6				
Intersection Summary												
HCM 6th Ctrl Delay			15.0									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
5: Lake Avenue & Moriches Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	137	170	17	141	64	163	231	18	33	194	0
Future Volume (veh/h)	0	137	170	17	141	64	163	231	18	33	194	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1945	1945	1945	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	140	0	17	144	65	166	236	18	34	198	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	581		138	559	512	681	812	62	632	885	0
Arrive On Green	0.00	0.31	0.00	0.31	0.31	0.31	0.47	0.47	0.41	0.47	0.47	0.00
Sat Flow, veh/h	0	1870	1585	97	1800	1648	1185	1716	131	1126	1870	0
Grp Volume(v), veh/h	0	140	0	161	0	65	166	0	254	34	198	0
Grp Sat Flow(s),veh/h/ln	0	1870	1585	1897	0	1648	1185	0	1847	1126	1870	0
Q Serve(g_s), s	0.0	2.1	0.0	0.0	0.0	1.0	3.6	0.0	3.1	0.7	2.3	0.0
Cycle Q Clear(g_c), s	0.0	2.1	0.0	2.3	0.0	1.0	5.9	0.0	3.1	3.8	2.3	0.0
Prop In Lane	0.00		1.00	0.11		1.00	1.00		0.07	1.00		0.00
Lane Grp Cap(c), veh/h	0	581		697	0	512	681	0	873	632	885	0
V/C Ratio(X)	0.00	0.24		0.23	0.00	0.13	0.24	0.00	0.29	0.05	0.22	0.00
Avail Cap(c_a), veh/h	0	1163		1271	0	1025	1753	0	2546	1651	2578	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	9.5	0.0	9.6	0.0	9.1	7.5	0.0	6.0	7.1	5.7	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.2	0.0	0.1	0.2	0.0	0.2	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.0	0.7	0.0	0.3	0.6	0.0	0.8	0.1	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	9.7	0.0	9.7	0.0	9.3	7.7	0.0	6.2	7.2	5.9	0.0
LnGrp LOS	A	A		A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		140	A		226			420			232	
Approach Delay, s/veh		9.7			9.6			6.8			6.1	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		21.5		15.5		21.5		15.5
Change Period (Y+Rc), s		* 6.5		5.5		* 6.5		5.5
Max Green Setting (Gmax), s		* 49		21.5		* 49		21.5
Max Q Clear Time (g_c+I1), s		7.9		4.1		5.8		4.3
Green Ext Time (p_c), s		1.7		0.3		0.9		0.7

Intersection Summary	
HCM 6th Ctrl Delay	7.6
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th AWSC
6: Moriches Road & Evon Lane/Mills Pond Road

Intersection	
Intersection Delay, s/veh	14.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	27	7	176	32	9	13	228	204	8	175	1
Future Vol, veh/h	1	27	7	176	32	9	13	228	204	8	175	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	28	7	185	34	9	14	240	215	8	184	1
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	9.6	13.8	16.1	10.8
HCM LOS	A	B	C	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	3%	3%	85%	0%	4%
Vol Thru, %	51%	77%	15%	0%	95%
Vol Right, %	46%	20%	0%	100%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	445	35	208	9	184
LT Vol	13	1	176	0	8
Through Vol	228	27	32	0	175
RT Vol	204	7	0	9	1
Lane Flow Rate	468	37	219	9	194
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.637	0.063	0.408	0.015	0.295
Departure Headway (Hd)	4.892	6.153	6.703	5.562	5.489
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	745	579	536	642	653
Service Time	2.892	4.22	4.45	3.308	3.538
HCM Lane V/C Ratio	0.628	0.064	0.409	0.014	0.297
HCM Control Delay	16.1	9.6	14	8.4	10.8
HCM Lane LOS	C	A	B	A	B
HCM 95th-tile Q	4.6	0.2	2	0	1.2

HCM 6th Signalized Intersection Summary
7: Woodlawn Avenue/Gated & Moriches Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	0	402	0	0	0	312	412	0	0	400	49
Future Volume (veh/h)	74	0	402	0	0	0	312	412	0	0	400	49
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870				1870	1945	0	0	1870	1870
Adj Flow Rate, veh/h	78	0	423				328	434	0	0	421	52
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	0	2				2	2	0	0	2	2
Cap, veh/h	255	0	508				569	1250	0	0	584	72
Arrive On Green	0.14	0.00	0.14				0.18	0.64	0.00	0.00	0.36	0.36
Sat Flow, veh/h	1781	0	1585				1781	1945	0	0	1632	202
Grp Volume(v), veh/h	78	0	423				328	434	0	0	0	473
Grp Sat Flow(s),veh/h/ln	1781	0	1585				1781	1945	0	0	0	1834
Q Serve(g_s), s	2.2	0.0	8.0				5.4	5.7	0.0	0.0	0.0	12.5
Cycle Q Clear(g_c), s	2.2	0.0	8.0				5.4	5.7	0.0	0.0	0.0	12.5
Prop In Lane	1.00		1.00				1.00		0.00	0.00		0.11
Lane Grp Cap(c), veh/h	255	0	508				569	1250	0	0	0	656
V/C Ratio(X)	0.31	0.00	0.83				0.58	0.35	0.00	0.00	0.00	0.72
Avail Cap(c_a), veh/h	255	0	508				571	2017	0	0	0	1377
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	21.5	0.0	17.6				9.2	4.6	0.0	0.0	0.0	15.6
Incr Delay (d2), s/veh	0.7	0.0	11.3				1.4	0.2	0.0	0.0	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	1.6				1.7	1.5	0.0	0.0	0.0	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.2	0.0	28.9				10.6	4.8	0.0	0.0	0.0	17.1
LnGrp LOS	C	A	C				B	A	A	A	A	B
Approach Vol, veh/h		501						762			473	
Approach Delay, s/veh		27.8						7.3			17.1	
Approach LOS		C						A			B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		41.9		14.0	15.9	26.0
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		58.0		8.0	10.0	42.0
Max Q Clear Time (g_c+I1), s		7.7		10.0	7.4	14.5
Green Ext Time (p_c), s		1.9		0.0	0.4	2.1

Intersection Summary	
HCM 6th Ctrl Delay	15.9
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
8: Moriches Road & NYS 347

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	1625	99	167	1642	294	103	152	108	303	204	120
Future Volume (veh/h)	153	1625	99	167	1642	294	103	152	108	303	204	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	161	1711	104	176	1728	0	108	160	114	319	215	126
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	194	2425	722	258	2251		217	208	295	405	264	396
Arrive On Green	0.11	0.47	0.46	0.07	0.44	0.00	0.06	0.11	0.11	0.12	0.14	0.14
Sat Flow, veh/h	1781	5106	1585	3456	5106	1585	3456	1870	1585	3456	1870	1585
Grp Volume(v), veh/h	161	1711	104	176	1728	0	108	160	114	319	215	126
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1728	1702	1585	1728	1870	1585	1728	1870	1585
Q Serve(g_s), s	9.0	26.9	2.4	5.0	29.0	0.0	3.1	8.4	6.4	9.1	11.3	4.3
Cycle Q Clear(g_c), s	9.0	26.9	2.4	5.0	29.0	0.0	3.1	8.4	6.4	9.1	11.3	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	194	2425	722	258	2251		217	208	295	405	264	396
V/C Ratio(X)	0.83	0.71	0.14	0.68	0.77		0.50	0.77	0.39	0.79	0.81	0.32
Avail Cap(c_a), veh/h	263	3774	1140	851	4292		613	452	501	613	452	555
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.3	21.0	6.2	45.8	24.0	0.0	46.0	43.8	36.2	43.6	42.3	14.3
Incr Delay (d2), s/veh	14.9	0.4	0.1	3.2	0.6	0.0	1.8	5.9	0.8	3.9	6.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	9.5	1.3	2.2	10.5	0.0	1.4	4.2	2.4	4.0	5.6	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.2	21.4	6.3	48.9	24.5	0.0	47.8	49.7	37.1	47.5	48.3	14.7
LnGrp LOS	E	C	A	D	C		D	D	D	D	D	B
Approach Vol, veh/h		1976			1904	A		382			660	
Approach Delay, s/veh		23.7			26.8			45.4			41.5	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.9	18.8	12.6	53.2	13.9	21.8	16.0	49.7
Change Period (Y+Rc), s	5.0	7.5	5.0	7.0	7.5	* 7.5	5.0	* 7
Max Green Setting (Gmax), s	18.0	24.5	25.0	73.0	18.0	* 25	15.0	* 83
Max Q Clear Time (g_c+I1), s	11.1	10.4	7.0	28.9	5.1	13.3	11.0	31.0
Green Ext Time (p_c), s	0.8	0.9	0.6	12.1	0.3	1.0	0.2	11.7

Intersection Summary	
HCM 6th Ctrl Delay	29.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
9: NYS 25A & Main Street

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	703	82	305	803	88	215
Future Volume (veh/h)	703	82	305	803	88	215
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1945	1870	1945	1870	1870
Adj Flow Rate, veh/h	732	0	318	836	92	224
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	766		554	1197	237	768
Arrive On Green	0.43	0.00	0.30	0.30	0.05	0.41
Sat Flow, veh/h	1781	1648	1870	1648	1781	1870
Grp Volume(v), veh/h	732	0	318	836	92	224
Grp Sat Flow(s),veh/h/ln	1781	1648	1870	1648	1781	1870
Q Serve(g_s), s	34.9	0.0	12.6	24.7	3.0	7.0
Cycle Q Clear(g_c), s	34.9	0.0	12.6	24.7	3.0	7.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	766		554	1197	237	768
V/C Ratio(X)	0.96		0.57	0.70	0.39	0.29
Avail Cap(c_a), veh/h	792		554	1197	237	768
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.2	0.0	26.2	6.7	20.2	17.3
Incr Delay (d2), s/veh	21.5	0.0	1.4	1.8	1.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.2	0.0	5.7	18.6	1.3	3.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.7	0.0	27.6	8.5	21.2	17.5
LnGrp LOS	D		C	A	C	B
Approach Vol, veh/h	732	A	1154			316
Approach Delay, s/veh	45.7		13.7			18.6
Approach LOS	D		B			B

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.0	34.0				44.0		43.7
Change Period (Y+Rc), s	6.0	8.0				8.0		6.0
Max Green Setting (Gmax), s	4.0	26.0				36.0		39.0
Max Q Clear Time (g_c+I1), s	5.0	26.7				9.0		36.9
Green Ext Time (p_c), s	0.0	0.0				0.8		0.8

Intersection Summary	
HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
10: Stony Brook Road & South Drive

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	661	237	220	345	158	378
Future Volume (veh/h)	661	237	220	345	158	378
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	689	247	229	359	165	394
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	746	664	827	701	205	422
Arrive On Green	0.42	0.42	0.44	0.44	0.44	0.44
Sat Flow, veh/h	1781	1585	1870	1585	332	955
Grp Volume(v), veh/h	689	247	229	359	559	0
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1287	0
Q Serve(g_s), s	29.0	8.5	6.2	12.9	27.9	0.0
Cycle Q Clear(g_c), s	29.0	8.5	6.2	12.9	34.0	0.0
Prop In Lane	1.00	1.00		1.00	0.30	
Lane Grp Cap(c), veh/h	746	664	827	701	628	0
V/C Ratio(X)	0.92	0.37	0.28	0.51	0.89	0.00
Avail Cap(c_a), veh/h	855	761	827	701	628	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.8	15.8	14.0	15.9	22.5	0.0
Incr Delay (d2), s/veh	14.3	0.3	0.2	0.6	14.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.1	3.0	2.5	4.5	12.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	36.0	16.2	14.2	16.6	37.3	0.0
LnGrp LOS	D	B	B	B	D	A
Approach Vol, veh/h	936		588			559
Approach Delay, s/veh	30.8		15.7			37.3
Approach LOS	C		B			D

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	41.0	41.0	38.2
Change Period (Y+Rc), s	6.0	6.0	5.0
Max Green Setting (Gmax), s	35.0	35.0	38.0
Max Q Clear Time (g_c+I1), s	14.9	36.0	31.0
Green Ext Time (p_c), s	2.6	0.0	2.2

Intersection Summary	
HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
11: Oxhead Road & Stony Brook Road

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	110	87	467	136	197	814
Future Volume (veh/h)	110	87	467	136	197	814
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1976	1976	1870	1870	1870	1870
Adj Flow Rate, veh/h	116	92	492	143	207	857
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	136	108	1020	296	219	785
Arrive On Green	0.14	0.14	0.73	0.73	0.73	0.73
Sat Flow, veh/h	975	773	1393	405	230	1072
Grp Volume(v), veh/h	209	0	0	635	1064	0
Grp Sat Flow(s),veh/h/ln	1757	0	0	1797	1303	0
Q Serve(g_s), s	10.0	0.0	0.0	12.6	50.4	0.0
Cycle Q Clear(g_c), s	10.0	0.0	0.0	12.6	63.0	0.0
Prop In Lane	0.56	0.44		0.23	0.19	
Lane Grp Cap(c), veh/h	246	0	0	1316	1004	0
V/C Ratio(X)	0.85	0.00	0.00	0.48	1.06	0.00
Avail Cap(c_a), veh/h	286	0	0	1316	1004	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.1	0.0	0.0	4.8	16.0	0.0
Incr Delay (d2), s/veh	18.8	0.0	0.0	0.3	45.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	0.0	3.6	30.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	54.9	0.0	0.0	5.0	61.6	0.0
LnGrp LOS	D	A	A	A	F	A
Approach Vol, veh/h	209		635			1064
Approach Delay, s/veh	54.9		5.0			61.6
Approach LOS	D		A			E

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	69.0	69.0	17.0
Change Period (Y+Rc), s	6.0	6.0	5.0
Max Green Setting (Gmax), s	63.0	63.0	14.0
Max Q Clear Time (g_c+I1), s	14.6	65.0	12.0
Green Ext Time (p_c), s	2.3	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	42.1
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary
12: Hallock Road & Stony Brook Road

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	171	37	45	456	782	199
Future Volume (veh/h)	171	37	45	456	782	199
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	173	37	45	461	790	201
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	264	235	226	1181	909	231
Arrive On Green	0.15	0.15	0.63	0.63	0.63	0.63
Sat Flow, veh/h	1781	1585	568	1870	1438	366
Grp Volume(v), veh/h	173	37	45	461	0	991
Grp Sat Flow(s),veh/h/ln	1781	1585	568	1870	0	1804
Q Serve(g_s), s	5.4	1.2	4.1	7.1	0.0	26.5
Cycle Q Clear(g_c), s	5.4	1.2	30.6	7.1	0.0	26.5
Prop In Lane	1.00	1.00	1.00			0.20
Lane Grp Cap(c), veh/h	264	235	226	1181	0	1140
V/C Ratio(X)	0.66	0.16	0.20	0.39	0.00	0.87
Avail Cap(c_a), veh/h	272	242	348	1584	0	1529
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.7	21.9	21.4	5.3	0.0	8.9
Incr Delay (d2), s/veh	5.4	0.3	0.4	0.2	0.0	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.4	0.5	2.0	0.0	8.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.1	22.2	21.8	5.5	0.0	13.3
LnGrp LOS	C	C	C	A	A	B
Approach Vol, veh/h	210			506	991	
Approach Delay, s/veh	27.9			7.0	13.3	
Approach LOS	C			A	B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		43.3		15.7		43.3
Change Period (Y+Rc), s		6.0		8.0		6.0
Max Green Setting (Gmax), s		50.0		8.0		50.0
Max Q Clear Time (g_c+I1), s		32.6		7.4		28.5
Green Ext Time (p_c), s		3.2		0.0		8.8

Intersection Summary			
HCM 6th Ctrl Delay			13.2
HCM 6th LOS			B

HCM 6th Signalized Intersection Summary
13: NYS 347 & Stony Brook Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	369	2015	91	117	2202	128	82	138	84	274	206	232
Future Volume (veh/h)	369	2015	91	117	2202	128	82	138	84	274	206	232
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1945	1870	1870	1870	1870	1870	1945	1870	1870	1870
Adj Flow Rate, veh/h	377	2056	93	119	2247	131	84	141	86	280	210	237
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	436	1943	879	142	2622	793	197	212	171	283	321	256
Arrive On Green	0.13	0.55	0.53	0.08	0.51	0.50	0.05	0.11	0.10	0.11	0.17	0.16
Sat Flow, veh/h	3456	3554	1648	1781	5106	1585	1781	1870	1648	1781	1870	1585
Grp Volume(v), veh/h	377	2056	93	119	2247	131	84	141	86	280	210	237
Grp Sat Flow(s),veh/h/ln	1728	1777	1648	1781	1702	1585	1781	1870	1648	1781	1870	1585
Q Serve(g_s), s	16.2	83.0	3.0	10.0	58.0	6.8	6.3	11.0	6.1	17.0	15.9	22.4
Cycle Q Clear(g_c), s	16.2	83.0	3.0	10.0	58.0	6.8	6.3	11.0	6.1	17.0	15.9	22.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	436	1943	879	142	2622	793	197	212	171	283	321	256
V/C Ratio(X)	0.87	1.06	0.11	0.84	0.86	0.17	0.43	0.67	0.50	0.99	0.66	0.93
Avail Cap(c_a), veh/h	569	1943	879	246	2657	804	265	289	239	283	326	261
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.1	34.4	8.6	68.9	32.1	20.7	56.8	64.6	42.8	56.9	58.7	62.8
Incr Delay (d2), s/veh	10.6	37.9	0.1	12.0	3.0	0.1	1.5	3.6	2.3	50.7	4.6	36.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	43.1	1.5	4.9	23.1	2.5	3.0	5.5	3.2	6.6	8.0	11.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.7	72.3	8.7	80.9	35.1	20.8	58.2	68.1	45.1	107.6	63.3	98.8
LnGrp LOS	E	F	A	F	D	C	E	E	D	F	E	F
Approach Vol, veh/h		2526			2497			311			727	
Approach Delay, s/veh		70.5			36.5			59.1			91.9	
Approach LOS		E			D			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.0	21.7	19.1	88.0	14.2	30.5	24.1	83.0				
Change Period (Y+Rc), s	6.0	6.0	7.0	* 7	6.0	6.0	5.0	7.0				
Max Green Setting (Gmax), s	17.0	22.0	21.0	* 81	14.0	25.0	25.0	77.0				
Max Q Clear Time (g_c+I1), s	19.0	13.0	12.0	85.0	8.3	24.4	18.2	60.0				
Green Ext Time (p_c), s	0.0	0.6	0.2	0.0	0.1	0.1	0.9	11.5				
Intersection Summary												
HCM 6th Ctrl Delay			58.5									
HCM 6th LOS			E									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
14: Mills Pond Road & Site Access 1

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	1	185	1	0	219
Future Vol, veh/h	2	1	185	1	0	219
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	1	201	1	0	238

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	440	202	0	0	202	0
Stage 1	202	-	-	-	-	-
Stage 2	238	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	574	839	-	-	1370	-
Stage 1	832	-	-	-	-	-
Stage 2	802	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	574	839	-	-	1370	-
Mov Cap-2 Maneuver	574	-	-	-	-	-
Stage 1	832	-	-	-	-	-
Stage 2	802	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	642	1370	-
HCM Lane V/C Ratio	-	-	0.005	-	-
HCM Control Delay (s)	-	-	10.6	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

HCM 6th TWSC
15: Mills Pond Road & Site Access 2

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	44	62	143	40	31	123
Future Vol, veh/h	44	62	143	40	31	123
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	67	155	43	34	134

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	379	177	0	0	198	0
Stage 1	177	-	-	-	-	-
Stage 2	202	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	623	866	-	-	1375	-
Stage 1	854	-	-	-	-	-
Stage 2	832	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	606	866	-	-	1375	-
Mov Cap-2 Maneuver	606	-	-	-	-	-
Stage 1	831	-	-	-	-	-
Stage 2	832	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	1.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	606	866	1375	-
HCM Lane V/C Ratio	-	-	0.079	0.078	0.025	-
HCM Control Delay (s)	-	-	11.4	9.5	7.7	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.3	0.1	-

HCM 6th TWSC
17: Development Drive & Stony Brook Road

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	33	73	19	412	380	16
Future Vol, veh/h	33	73	19	412	380	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	260	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	80	21	453	418	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	922	427	436	0	-	0
Stage 1	427	-	-	-	-	-
Stage 2	495	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	300	628	1124	-	-	-
Stage 1	658	-	-	-	-	-
Stage 2	613	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	293	628	1124	-	-	-
Mov Cap-2 Maneuver	293	-	-	-	-	-
Stage 1	642	-	-	-	-	-
Stage 2	613	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.9	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1124	-	293	628	-	-
HCM Lane V/C Ratio	0.019	-	0.124	0.128	-	-
HCM Control Delay (s)	8.3	0	19	11.6	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	0.4	-	-

HCM 6th TWSC
21: Stony Brook Road & Stony Brook Rd WB Right

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑	↱		↰	
Traffic Vol, veh/h	0	316	226	172	149	0
Future Vol, veh/h	0	316	226	172	149	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	333	238	181	157	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	662	-
Stage 1	-	-	-	-	329	-
Stage 2	-	-	-	-	333	-
Critical Hdwy	-	-	-	-	6.42	-
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	-
Pot Cap-1 Maneuver	0	-	-	-	427	0
Stage 1	0	-	-	-	729	0
Stage 2	0	-	-	-	726	0
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	427	-
Mov Cap-2 Maneuver	-	-	-	-	427	-
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	726	-

Approach	EB	WB	SE
HCM Control Delay, s	0	0	18.2
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SELn1
Capacity (veh/h)	-	-	-	427
HCM Lane V/C Ratio	-	-	-	0.367
HCM Control Delay (s)	-	-	-	18.2
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	1.7

HCM 6th TWSC
22: 25A & Stony Brook Rd WB Right

Intersection						
Int Delay, s/veh	3.6					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	172	919	0	149	785
Future Vol, veh/h	0	172	919	0	149	785
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	120	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	181	967	0	157	826

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	967	0	-	967	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	0	308	-	0	712	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	308	-	-	712	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	32.1	0	1.8
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	308	712	-
HCM Lane V/C Ratio	-	0.588	0.22	-
HCM Control Delay (s)	-	32.1	11.5	-
HCM Lane LOS	-	D	B	-
HCM 95th %tile Q(veh)	-	3.5	0.8	-

HCM 6th TWSC
1: Mills Pond Road & NYS Route 25A

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	634	49	123	516	28	95
Future Vol, veh/h	634	49	123	516	28	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	647	50	126	527	29	97

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	697	0	1451	672
Stage 1	-	-	-	-	672	-
Stage 2	-	-	-	-	779	-
Critical Hdwy	-	-	4.11	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	904	-	145	459
Stage 1	-	-	-	-	511	-
Stage 2	-	-	-	-	456	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	904	-	116	459
Mov Cap-2 Maneuver	-	-	-	-	116	-
Stage 1	-	-	-	-	410	-
Stage 2	-	-	-	-	456	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	22
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	116	459	-	-	904	-
HCM Lane V/C Ratio	0.246	0.211	-	-	0.139	-
HCM Control Delay (s)	45.9	14.9	-	-	9.6	0
HCM Lane LOS	E	B	-	-	A	A
HCM 95th %tile Q(veh)	0.9	0.8	-	-	0.5	-

HCM 6th TWSC
2: 25A & Stony Brook Road

Intersection	
Int Delay, s/veh	4.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	122	0	540	183	0	511
Future Vol, veh/h	122	0	540	183	0	511
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Free	-	Free
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	130	0	574	195	0	544

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1118	-	0	-	-	-
Stage 1	574	-	-	-	-	-
Stage 2	544	-	-	-	-	-
Critical Hdwy	6.42	-	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	-	-
Pot Cap-1 Maneuver	229	0	-	0	0	-
Stage 1	563	0	-	0	0	-
Stage 2	582	0	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	229	-	-	-	-	-
Mov Cap-2 Maneuver	229	-	-	-	-	-
Stage 1	563	-	-	-	-	-
Stage 2	582	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	39.5	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	229	-
HCM Lane V/C Ratio	-	0.567	-
HCM Control Delay (s)	-	39.5	-
HCM Lane LOS	-	E	-
HCM 95th %tile Q(veh)	-	3.1	-

HCM 6th TWSC
3: Lake Avenue/Fire Dept & Route 25A

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	570	7	181	499	0	0	1	218	0	0	0
Future Vol, veh/h	0	570	7	181	499	0	0	1	218	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	250	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	606	7	193	531	0	0	1	232	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	531	0	0	613	0	0	-	1527	610	1643	1530	531
Stage 1	-	-	-	-	-	-	-	610	-	917	917	-
Stage 2	-	-	-	-	-	-	-	917	-	726	613	-
Critical Hdwy	4.12	-	-	4.12	-	-	-	5	5	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	-	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	-	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1036	-	-	966	-	0	0	224	608	80	117	548
Stage 1	-	-	-	-	-	0	0	485	-	326	351	-
Stage 2	-	-	-	-	-	0	0	351	-	416	483	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	1036	-	-	966	-	-	-	179	608	42	94	548
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	179	-	42	94	-
Stage 1	-	-	-	-	-	-	-	485	-	326	281	-
Stage 2	-	-	-	-	-	-	-	281	-	257	483	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	2.6	14.5	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	179	608	1036	-	-	966	-	-
HCM Lane V/C Ratio	0.006	0.381	-	-	-	0.199	-	-
HCM Control Delay (s)	25.2	14.5	0	-	-	9.7	-	0
HCM Lane LOS	D	B	A	-	-	A	-	A
HCM 95th %tile Q(veh)	0	1.8	0	-	-	0.7	-	-

HCM 6th Signalized Intersection Summary
4: Route 25A & Moriches Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	29	119	17	181	134	0	11	520	144	0	467	23
Future Volume (veh/h)	29	119	17	181	134	0	11	520	144	0	467	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	0	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	29	120	17	183	135	0	11	525	145	0	472	23
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	0	2	2	2	0	2	2
Cap, veh/h	509	485	69	506	566	0	106	781	670	0	748	36
Arrive On Green	0.30	0.30	0.27	0.30	0.30	0.00	0.42	0.42	0.42	0.00	0.42	0.42
Sat Flow, veh/h	1254	1602	227	1252	1870	0	11	1847	1585	0	1769	86
Grp Volume(v), veh/h	29	0	137	183	135	0	536	0	145	0	0	495
Grp Sat Flow(s),veh/h/ln	1254	0	1829	1252	1870	0	1858	0	1585	0	0	1855
Q Serve(g_s), s	0.6	0.0	2.1	4.7	2.0	0.0	0.0	0.0	2.1	0.0	0.0	7.6
Cycle Q Clear(g_c), s	2.6	0.0	2.1	6.8	2.0	0.0	8.4	0.0	2.1	0.0	0.0	7.6
Prop In Lane	1.00		0.12	1.00		0.00	0.02		1.00	0.00		0.05
Lane Grp Cap(c), veh/h	509	0	553	506	566	0	887	0	670	0	0	784
V/C Ratio(X)	0.06	0.00	0.25	0.36	0.24	0.00	0.60	0.00	0.22	0.00	0.00	0.63
Avail Cap(c_a), veh/h	854	0	1056	850	1080	0	2830	0	2353	0	0	2753
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	10.5	0.0	9.6	12.1	9.5	0.0	8.5	0.0	6.7	0.0	0.0	8.3
Incr Delay (d2), s/veh	0.0	0.0	0.2	0.3	0.2	0.0	1.0	0.0	0.2	0.0	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.6	1.0	0.6	0.0	1.9	0.0	0.4	0.0	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.6	0.0	9.8	12.4	9.7	0.0	9.4	0.0	6.9	0.0	0.0	9.5
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		166			318			681			495	
Approach Delay, s/veh		9.9			11.3			8.9			9.5	
Approach LOS		A			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	21.4	15.0	21.4	15.0
Change Period (Y+Rc), s	6.0	5.0	6.0	5.0
Max Green Setting (Gmax), s	54.0	20.0	54.0	20.0
Max Q Clear Time (g_c+I1), s	10.4	4.6	9.6	8.8
Green Ext Time (p_c), s	4.9	0.4	3.4	0.7

Intersection Summary	
HCM 6th Ctrl Delay	9.6
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
5: Lake Avenue & Moriches Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	106	133	26	170	50	124	166	17	36	159	0
Future Volume (veh/h)	0	106	133	26	170	50	124	166	17	36	159	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1945	1945	1945	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	118	0	29	189	56	138	184	19	40	177	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	581		154	541	512	699	789	81	674	885	0
Arrive On Green	0.00	0.31	0.00	0.31	0.31	0.31	0.47	0.47	0.41	0.47	0.47	0.00
Sat Flow, veh/h	0	1870	1585	140	1740	1648	1207	1667	172	1179	1870	0
Grp Volume(v), veh/h	0	118	0	218	0	56	138	0	203	40	177	0
Grp Sat Flow(s),veh/h/ln	0	1870	1585	1880	0	1648	1207	0	1839	1179	1870	0
Q Serve(g_s), s	0.0	1.7	0.0	0.0	0.0	0.9	2.8	0.0	2.4	0.8	2.0	0.0
Cycle Q Clear(g_c), s	0.0	1.7	0.0	3.2	0.0	0.9	4.8	0.0	2.4	3.2	2.0	0.0
Prop In Lane	0.00		1.00	0.13		1.00	1.00		0.09	1.00		0.00
Lane Grp Cap(c), veh/h	0	581		694	0	512	699	0	870	674	885	0
V/C Ratio(X)	0.00	0.20		0.31	0.00	0.11	0.20	0.00	0.23	0.06	0.20	0.00
Avail Cap(c_a), veh/h	0	1466		1561	0	1292	1205	0	1641	1168	1668	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	9.4	0.0	9.9	0.0	9.1	7.1	0.0	5.9	6.7	5.7	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.3	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.5	0.0	1.0	0.0	0.2	0.5	0.0	0.6	0.1	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	9.5	0.0	10.2	0.0	9.2	7.2	0.0	6.0	6.8	5.8	0.0
LnGrp LOS	A	A		B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		118	A		274			341			217	
Approach Delay, s/veh		9.5			10.0			6.5			6.0	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		21.5		15.5		21.5		15.5
Change Period (Y+Rc), s		* 6.5		5.5		* 6.5		5.5
Max Green Setting (Gmax), s		* 31		27.5		* 31		27.5
Max Q Clear Time (g_c+I1), s		6.8		3.7		5.2		5.2
Green Ext Time (p_c), s		1.3		0.3		0.7		0.9

Intersection Summary	
HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th AWSC
6: Moriches Road & Evon Lane/Mills Pond Road

Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	23	9	173	13	8	11	200	151	8	194	2
Future Vol, veh/h	2	23	9	173	13	8	11	200	151	8	194	2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	25	10	186	14	9	12	215	162	9	209	2
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	9.3	12.9	13.1	10.8
HCM LOS	A	B	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	3%	6%	93%	0%	4%
Vol Thru, %	55%	68%	7%	0%	95%
Vol Right, %	42%	26%	0%	100%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	362	34	186	8	204
LT Vol	11	2	173	0	8
Through Vol	200	23	13	0	194
RT Vol	151	9	0	8	2
Lane Flow Rate	389	37	200	9	219
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.525	0.06	0.366	0.013	0.322
Departure Headway (Hd)	4.852	5.899	6.592	5.41	5.28
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	747	605	546	661	680
Service Time	2.852	3.95	4.33	3.147	3.315
HCM Lane V/C Ratio	0.521	0.061	0.366	0.014	0.322
HCM Control Delay	13.1	9.3	13.1	8.2	10.8
HCM Lane LOS	B	A	B	A	B
HCM 95th-tile Q	3.1	0.2	1.7	0	1.4

HCM 6th Signalized Intersection Summary
7: Woodlawn Avenue/Gated & Moriches Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	0	403	0	0	0	310	377	0	0	405	38
Future Volume (veh/h)	37	0	403	0	0	0	310	377	0	0	405	38
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870				1870	1945	0	0	1870	1870
Adj Flow Rate, veh/h	38	0	411				316	385	0	0	413	39
Peak Hour Factor	0.98	0.98	0.98				0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	0	2				2	2	0	0	2	2
Cap, veh/h	255	0	508				584	1250	0	0	602	57
Arrive On Green	0.14	0.00	0.14				0.18	0.64	0.00	0.00	0.36	0.36
Sat Flow, veh/h	1781	0	1585				1781	1945	0	0	1683	159
Grp Volume(v), veh/h	38	0	411				316	385	0	0	0	452
Grp Sat Flow(s),veh/h/ln	1781	0	1585				1781	1945	0	0	0	1842
Q Serve(g_s), s	1.0	0.0	8.0				5.2	4.9	0.0	0.0	0.0	11.7
Cycle Q Clear(g_c), s	1.0	0.0	8.0				5.2	4.9	0.0	0.0	0.0	11.7
Prop In Lane	1.00		1.00				1.00		0.00	0.00		0.09
Lane Grp Cap(c), veh/h	255	0	508				584	1250	0	0	0	659
V/C Ratio(X)	0.15	0.00	0.81				0.54	0.31	0.00	0.00	0.00	0.69
Avail Cap(c_a), veh/h	255	0	508				587	2017	0	0	0	1383
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	21.0	0.0	17.4				8.8	4.5	0.0	0.0	0.0	15.3
Incr Delay (d2), s/veh	0.3	0.0	9.5				1.0	0.1	0.0	0.0	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	1.3				1.6	1.3	0.0	0.0	0.0	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.3	0.0	26.9				9.8	4.6	0.0	0.0	0.0	16.6
LnGrp LOS	C	A	C				A	A	A	A	A	B
Approach Vol, veh/h		449						701			452	
Approach Delay, s/veh		26.4						6.9			16.6	
Approach LOS		C						A			B	

Timer - Assigned Phs	2	4	5	6
Phs Duration (G+Y+Rc), s	41.9	14.0	15.9	26.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	58.0	8.0	10.0	42.0
Max Q Clear Time (g_c+I1), s	6.9	10.0	7.2	13.7
Green Ext Time (p_c), s	1.7	0.0	0.4	2.0

Intersection Summary	
HCM 6th Ctrl Delay	15.1
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
8: Moriches Road & NYS 347

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	209	1286	167	346	1296	302	149	149	160	308	232	129
Future Volume (veh/h)	209	1286	167	346	1296	302	149	149	160	308	232	129
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	225	1383	180	372	1394	0	160	160	172	331	249	139
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	260	1932	566	456	1861		242	244	416	425	294	480
Arrive On Green	0.15	0.38	0.36	0.13	0.36	0.00	0.07	0.13	0.13	0.12	0.16	0.16
Sat Flow, veh/h	1781	5106	1585	3456	5106	1585	3456	1870	1585	3456	1870	1585
Grp Volume(v), veh/h	225	1383	180	372	1394	0	160	160	172	331	249	139
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1728	1702	1585	1728	1870	1585	1728	1870	1585
Q Serve(g_s), s	11.8	22.0	5.1	10.0	22.7	0.0	4.3	7.7	8.5	8.8	12.3	3.8
Cycle Q Clear(g_c), s	11.8	22.0	5.1	10.0	22.7	0.0	4.3	7.7	8.5	8.8	12.3	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	260	1932	566	456	1861		242	244	416	425	294	480
V/C Ratio(X)	0.87	0.72	0.32	0.82	0.75		0.66	0.66	0.41	0.78	0.85	0.29
Avail Cap(c_a), veh/h	299	3487	1049	581	3503		653	364	517	653	364	539
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.7	25.2	9.5	40.2	26.4	0.0	43.2	39.4	29.0	40.5	39.0	10.2
Incr Delay (d2), s/veh	20.4	0.5	0.3	7.0	0.6	0.0	3.1	3.0	0.7	3.3	14.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	8.1	2.6	4.4	8.4	0.0	1.9	3.7	0.1	3.9	6.7	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.1	25.7	9.8	47.2	27.1	0.0	46.3	42.3	29.7	43.8	53.3	10.6
LnGrp LOS	E	C	A	D	C		D	D	C	D	D	B
Approach Vol, veh/h		1788			1766	A		492			719	
Approach Delay, s/veh		28.5			31.3			39.2			40.7	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.7	19.9	17.6	41.0	14.2	22.4	18.9	39.7				
Change Period (Y+Rc), s	5.0	7.5	5.0	7.0	7.5	* 7.5	5.0	* 7				
Max Green Setting (Gmax), s	18.0	18.5	16.0	63.0	18.0	* 19	16.0	* 63				
Max Q Clear Time (g_c+I1), s	10.8	10.5	12.0	24.0	6.3	14.3	13.8	24.7				
Green Ext Time (p_c), s	0.9	0.8	0.6	9.2	0.5	0.6	0.2	8.0				

Intersection Summary	
HCM 6th Ctrl Delay	32.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
9: NYS 25A & Main Street

Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	437	110	244	467	88	250	
Future Volume (veh/h)	437	110	244	467	88	250	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1945	1870	1945	1870	1870	
Adj Flow Rate, veh/h	451	0	252	481	91	258	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	549		501	950	342	811	
Arrive On Green	0.31	0.00	0.27	0.27	0.06	0.43	
Sat Flow, veh/h	1781	1648	1870	1648	1781	1870	
Grp Volume(v), veh/h	451	0	252	481	91	258	
Grp Sat Flow(s),veh/h/ln	1781	1648	1870	1648	1781	1870	
Q Serve(g_s), s	12.7	0.0	6.2	9.5	1.9	4.9	
Cycle Q Clear(g_c), s	12.7	0.0	6.2	9.5	1.9	4.9	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	549		501	950	342	811	
V/C Ratio(X)	0.82		0.50	0.51	0.27	0.32	
Avail Cap(c_a), veh/h	1282		897	1299	376	1242	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	17.4	0.0	16.8	6.9	12.4	10.1	
Incr Delay (d2), s/veh	3.1	0.0	0.8	0.4	0.4	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	5.0	0.0	2.5	5.6	0.7	1.7	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	20.5	0.0	17.6	7.3	12.8	10.3	
LnGrp LOS	C		B	A	B	B	
Approach Vol, veh/h	451	A	733			349	
Approach Delay, s/veh	20.5		10.8			11.0	
Approach LOS	C		B			B	
Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	9.0	22.5				31.5	22.7
Change Period (Y+Rc), s	6.0	8.0				8.0	6.0
Max Green Setting (Gmax), s	4.0	26.0				36.0	39.0
Max Q Clear Time (g_c+I1), s	13.9	11.5				6.9	14.7
Green Ext Time (p_c), s	0.0	3.1				1.0	2.0
Intersection Summary							
HCM 6th Ctrl Delay			13.7				
HCM 6th LOS			B				

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
10: Stony Brook Road & South Drive

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	166	51	237	178	63	295
Future Volume (veh/h)	166	51	237	178	63	295
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	175	54	249	187	66	311
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	681	606	745	632	158	601
Arrive On Green	0.38	0.38	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1781	1585	1870	1585	184	1509
Grp Volume(v), veh/h	175	54	249	187	377	0
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1693	0
Q Serve(g_s), s	3.4	1.1	4.6	4.0	0.9	0.0
Cycle Q Clear(g_c), s	3.4	1.1	4.6	4.0	7.8	0.0
Prop In Lane	1.00	1.00		1.00	0.18	
Lane Grp Cap(c), veh/h	681	606	745	632	759	0
V/C Ratio(X)	0.26	0.09	0.33	0.30	0.50	0.00
Avail Cap(c_a), veh/h	1136	1011	1305	1106	1237	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.6	9.9	10.5	10.3	11.4	0.0
Incr Delay (d2), s/veh	0.2	0.1	0.3	0.3	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.3	1.6	1.2	2.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.8	10.0	10.7	10.5	11.9	0.0
LnGrp LOS	B	A	B	B	B	A
Approach Vol, veh/h	229		436			377
Approach Delay, s/veh	10.6		10.7			11.9
Approach LOS	B		B			B

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	26.0	26.0	24.2
Change Period (Y+Rc), s	6.0	6.0	5.0
Max Green Setting (Gmax), s	35.0	35.0	32.0
Max Q Clear Time (g_c+I1), s	6.6	9.8	5.4
Green Ext Time (p_c), s	2.2	2.6	0.7

Intersection Summary	
HCM 6th Ctrl Delay	11.1
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
11: Oxhead Road & Stony Brook Road

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	68	106	316	84	117	349
Future Volume (veh/h)	68	106	316	84	117	349
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1976	1976	1870	1870	1870	1870
Adj Flow Rate, veh/h	73	114	340	90	126	375
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	148	231	761	201	247	673
Arrive On Green	0.22	0.22	0.53	0.53	0.53	0.53
Sat Flow, veh/h	669	1045	1425	377	276	1261
Grp Volume(v), veh/h	188	0	0	430	501	0
Grp Sat Flow(s),veh/h/ln	1724	0	0	1802	1536	0
Q Serve(g_s), s	4.3	0.0	0.0	6.6	3.2	0.0
Cycle Q Clear(g_c), s	4.3	0.0	0.0	6.6	9.8	0.0
Prop In Lane	0.39	0.61		0.21	0.25	
Lane Grp Cap(c), veh/h	381	0	0	962	921	0
V/C Ratio(X)	0.49	0.00	0.00	0.45	0.54	0.00
Avail Cap(c_a), veh/h	767	0	0	1805	1626	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.3	0.0	0.0	6.4	6.9	0.0
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.3	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	1.7	2.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.3	0.0	0.0	6.7	7.4	0.0
LnGrp LOS	B	A	A	A	A	A
Approach Vol, veh/h	188		430			501
Approach Delay, s/veh	16.3		6.7			7.4
Approach LOS	B		A			A

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	30.0	30.0	14.9
Change Period (Y+Rc), s	6.0	6.0	5.0
Max Green Setting (Gmax), s	45.0	45.0	20.0
Max Q Clear Time (g_c+I1), s	8.6	11.8	6.3
Green Ext Time (p_c), s	1.4	4.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	8.6
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
12: Hallock Road & Stony Brook Road

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	123	31	26	312	356	100
Future Volume (veh/h)	123	31	26	312	356	100
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	126	32	27	318	363	102
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	335	299	469	920	691	194
Arrive On Green	0.19	0.19	0.49	0.49	0.49	0.49
Sat Flow, veh/h	1781	1585	928	1870	1405	395
Grp Volume(v), veh/h	126	32	27	318	0	465
Grp Sat Flow(s),veh/h/ln	1781	1585	928	1870	0	1799
Q Serve(g_s), s	2.5	0.7	0.8	4.2	0.0	7.2
Cycle Q Clear(g_c), s	2.5	0.7	8.0	4.2	0.0	7.2
Prop In Lane	1.00	1.00	1.00			0.22
Lane Grp Cap(c), veh/h	335	299	469	920	0	885
V/C Ratio(X)	0.38	0.11	0.06	0.35	0.00	0.53
Avail Cap(c_a), veh/h	394	351	1154	2300	0	2213
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.4	13.7	9.8	6.3	0.0	7.1
Incr Delay (d2), s/veh	0.7	0.2	0.1	0.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.2	0.1	1.2	0.0	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.1	13.8	9.9	6.5	0.0	7.6
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	158			345	465	
Approach Delay, s/veh	14.8			6.8	7.6	
Approach LOS	B			A	A	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	26.0	14.7	26.0
Change Period (Y+Rc), s	6.0	8.0	6.0
Max Green Setting (Gmax), s	50.0	8.0	50.0
Max Q Clear Time (g_c+I1), s	10.0	4.5	9.2
Green Ext Time (p_c), s	2.2	0.1	3.4

Intersection Summary	
HCM 6th Ctrl Delay	8.5
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
13: NYS 347 & Stony Brook Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	393	1817	124	103	2296	124	309	109	241	101	114	68
Future Volume (veh/h)	393	1817	124	103	2296	124	309	109	241	101	114	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1945	1870	1870	1870	1870	1870	1945	1870	1870	1870
Adj Flow Rate, veh/h	405	1873	128	106	2367	128	319	112	248	104	118	70
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	470	1900	856	131	2489	748	307	297	243	244	169	125
Arrive On Green	0.14	0.53	0.52	0.07	0.49	0.47	0.13	0.16	0.15	0.06	0.09	0.08
Sat Flow, veh/h	3456	3554	1648	1781	5106	1585	1781	1870	1648	1781	1870	1585
Grp Volume(v), veh/h	405	1873	128	106	2367	128	319	112	248	104	118	70
Grp Sat Flow(s),veh/h/ln	1728	1777	1648	1781	1702	1585	1781	1870	1648	1781	1870	1585
Q Serve(g_s), s	15.0	67.9	2.8	7.7	58.0	6.1	17.0	7.0	15.4	7.0	8.0	5.6
Cycle Q Clear(g_c), s	15.0	67.9	2.8	7.7	58.0	6.1	17.0	7.0	15.4	7.0	8.0	5.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	470	1900	856	131	2489	748	307	297	243	244	169	125
V/C Ratio(X)	0.86	0.99	0.15	0.81	0.95	0.17	1.04	0.38	1.02	0.43	0.70	0.56
Avail Cap(c_a), veh/h	581	1900	856	218	2496	751	307	364	302	244	236	182
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.3	30.0	4.5	59.8	32.1	19.8	49.7	49.3	35.5	51.4	57.8	58.1
Incr Delay (d2), s/veh	10.7	17.3	0.1	11.3	9.1	0.1	61.7	0.8	54.3	1.2	5.2	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	30.6	1.8	3.8	24.0	2.2	7.1	3.4	9.6	3.2	4.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.0	47.3	4.6	71.0	41.2	20.0	111.5	50.0	89.7	52.6	63.0	62.0
LnGrp LOS	E	D	A	E	D	B	F	D	F	D	E	E
Approach Vol, veh/h		2406			2601			679			292	
Approach Delay, s/veh		48.1			41.4			93.4			59.1	
Approach LOS		D			D			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	25.3	16.6	75.0	23.0	16.3	22.8	68.8
Change Period (Y+Rc), s	6.0	6.0	7.0	* 7	6.0	6.0	5.0	7.0
Max Green Setting (Gmax), s	8.0	24.0	16.0	* 68	17.0	15.0	22.0	62.0
Max Q Clear Time (g_c+I1), s	9.0	17.4	9.7	69.9	19.0	10.0	17.0	60.0
Green Ext Time (p_c), s	0.0	0.9	0.1	0.0	0.0	0.3	0.8	1.8

Intersection Summary	
HCM 6th Ctrl Delay	50.9
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
14: Mills Pond Road & Site Access 1

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	3	194	10	21	240
Future Vol, veh/h	1	3	194	10	21	240
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	3	211	11	23	261

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	524	217	0	0	222	0
Stage 1	217	-	-	-	-	-
Stage 2	307	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	514	823	-	-	1347	-
Stage 1	819	-	-	-	-	-
Stage 2	746	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	504	823	-	-	1347	-
Mov Cap-2 Maneuver	504	-	-	-	-	-
Stage 1	803	-	-	-	-	-
Stage 2	746	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	711	1347	-
HCM Lane V/C Ratio	-	-	0.006	0.017	-
HCM Control Delay (s)	-	-	10.1	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0.1	-

HCM 6th TWSC
15: Mills Pond Road & Site Access 2

Intersection						
Int Delay, s/veh	3					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	44	50	161	26	69	174
Future Vol, veh/h	44	50	161	26	69	174
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	54	175	28	75	189

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	528	189	0	0	203	0
Stage 1	189	-	-	-	-	-
Stage 2	339	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	511	853	-	-	1369	-
Stage 1	843	-	-	-	-	-
Stage 2	722	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	480	853	-	-	1369	-
Mov Cap-2 Maneuver	480	-	-	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	722	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.3	0	2.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	480	853	1369	-
HCM Lane V/C Ratio	-	-	0.1	0.064	0.055	-
HCM Control Delay (s)	-	-	13.3	9.5	7.8	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.2	0.2	-

HCM 6th TWSC
21: Stony Brook Road & Stony Brook Rd WB Right

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑	↱		↰	
Traffic Vol, veh/h	0	183	122	178	159	0
Future Vol, veh/h	0	183	122	178	159	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	195	130	189	169	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	420	-
Stage 1	-	-	-	-	225	-
Stage 2	-	-	-	-	195	-
Critical Hdwy	-	-	-	-	6.42	-
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	-
Pot Cap-1 Maneuver	0	-	-	-	590	0
Stage 1	0	-	-	-	812	0
Stage 2	0	-	-	-	838	0
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	590	-
Mov Cap-2 Maneuver	-	-	-	-	590	-
Stage 1	-	-	-	-	812	-
Stage 2	-	-	-	-	838	-

Approach	EB	WB	SE
HCM Control Delay, s	0	0	13.5
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SELn1
Capacity (veh/h)	-	-	-	590
HCM Lane V/C Ratio	-	-	-	0.287
HCM Control Delay (s)	-	-	-	13.5
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	1.2

HCM 6th TWSC
22: 25A & Stony Brook Rd WB Right

Intersection	
Int Delay, s/veh	3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	178	540	0	159	511
Future Vol, veh/h	0	178	540	0	159	511
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	120	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	189	574	0	169	544

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	574	0	-	574	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	0	518	-	0	999	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	518	-	-	999	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.9	0	2.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	518	999	-
HCM Lane V/C Ratio	-	0.366	0.169	-
HCM Control Delay (s)	-	15.9	9.3	-
HCM Lane LOS	-	C	A	-
HCM 95th %tile Q(veh)	-	1.7	0.6	-

APPENDIX C:

NO BUILD
LEVEL OF SERVICE/SYNCHRO WORKSHEETS

1. Route 25A at Mills Pond Road
2. Route 25A at Stony Brook Road
3. Route 25A at Lake Avenue
4. Route 25A at Moriches Road
5. Moriches Road at Lake Avenue
6. Moriches Road at Mills Pond Road
7. Moriches Road at Woodlawn Avenue
8. Route 347 at Moriches Road
9. Route 25A at Main Street
10. Stony Brook Road at South Drive
11. Stony Brook Road at Oxhead Road
12. Stony Brook Road at Hallock Road
13. Stony Brook Road at Route 347
17. Stony Brook Road at Development Drive (north intersection, un-gated)

HCM 6th TWSC
1: Mills Pond Road & NYS Route 25A

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	958	57	55	914	14	91
Future Vol, veh/h	958	57	55	914	14	91
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	1008	60	58	962	15	96

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1068	0	2116	1038
Stage 1	-	-	-	-	1038	-
Stage 2	-	-	-	-	1078	-
Critical Hdwy	-	-	4.11	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	656	-	56	283
Stage 1	-	-	-	-	344	-
Stage 2	-	-	-	-	330	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	656	-	51	283
Mov Cap-2 Maneuver	-	-	-	-	51	-
Stage 1	-	-	-	-	314	-
Stage 2	-	-	-	-	330	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	34.5
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	51	283	-	-	656	-
HCM Lane V/C Ratio	0.289	0.338	-	-	0.088	-
HCM Control Delay (s)	102.1	24.1	-	-	11	-
HCM Lane LOS	F	C	-	-	B	-
HCM 95th %tile Q(veh)	1	1.4	-	-	0.3	-

HCM 6th TWSC
2: 25A & Stony Brook Road

Intersection						
Int Delay, s/veh	21.4					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	151	0	647	386	0	817
Future Vol, veh/h	151	0	647	386	0	817
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Free	-	Free
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	159	0	681	406	0	860

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1541	-	0	-	-	-
Stage 1	681	-	-	-	-	-
Stage 2	860	-	-	-	-	-
Critical Hdwy	6.42	-	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	-	-
Pot Cap-1 Maneuver	~ 127	0	-	0	0	-
Stage 1	503	0	-	0	0	-
Stage 2	414	0	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	~ 127	-	-	-	-	-
Mov Cap-2 Maneuver	~ 127	-	-	-	-	-
Stage 1	503	-	-	-	-	-
Stage 2	414	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	228.4	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	127	-
HCM Lane V/C Ratio	-	1.252	-
HCM Control Delay (s)	-	228.4	-
HCM Lane LOS	-	F	-
HCM 95th %tile Q(veh)	-	10	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

HCM 6th TWSC
3: Lake Avenue/Fire Dept & Route 25A

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	887	0	193	856	0	0	0	203	0	0	0
Future Vol, veh/h	0	887	0	193	856	0	0	0	203	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	250	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	98	98	98	98	92	98	92	98	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	905	0	197	873	0	0	0	207	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	873	0	0	905	0	0	-	2172	905	2276	2172	873
Stage 1	-	-	-	-	-	-	-	905	-	1267	1267	-
Stage 2	-	-	-	-	-	-	-	1267	-	1009	905	-
Critical Hdwy	4.12	-	-	4.12	-	-	-	5	5	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	-	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	-	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	773	-	-	752	-	0	0	117	455	28	47	349
Stage 1	-	-	-	-	-	0	0	355	-	207	240	-
Stage 2	-	-	-	-	-	0	0	240	-	290	355	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	773	-	-	752	-	-	-	86	455	12	35	349
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	86	-	12	35	-
Stage 1	-	-	-	-	-	-	-	355	-	207	177	-
Stage 2	-	-	-	-	-	-	-	177	-	158	355	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	2.1	19.4	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	455	773	-	-	752	-	-
HCM Lane V/C Ratio	-	0.455	-	-	-	0.262	-	-
HCM Control Delay (s)	0	19.4	0	-	-	11.5	-	0
HCM Lane LOS	A	C	A	-	-	B	-	A
HCM 95th %tile Q(veh)	-	2.3	0	-	-	1	-	-

HCM 6th Signalized Intersection Summary
4: Route 25A & Moriches Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	63	116	12	180	78	0	12	827	99	0	817	35
Future Volume (veh/h)	63	116	12	180	78	0	12	827	99	0	817	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	0	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	66	122	13	189	82	0	13	871	104	0	860	37
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	0	2	2	2	0	2	2
Cap, veh/h	439	482	51	393	543	0	55	1017	906	0	1017	44
Arrive On Green	0.29	0.29	0.28	0.29	0.29	0.00	0.57	0.57	0.57	0.00	0.57	0.57
Sat Flow, veh/h	1316	1661	177	1254	1870	0	8	1780	1585	0	1780	77
Grp Volume(v), veh/h	66	0	135	189	82	0	884	0	104	0	0	897
Grp Sat Flow(s),veh/h/ln	1316	0	1838	1254	1870	0	1788	0	1585	0	0	1857
Q Serve(g_s), s	2.8	0.0	4.1	9.8	2.4	0.0	1.7	0.0	2.2	0.0	0.0	29.0
Cycle Q Clear(g_c), s	5.2	0.0	4.1	13.9	2.4	0.0	30.6	0.0	2.2	0.0	0.0	29.0
Prop In Lane	1.00		0.10	1.00		0.00	0.01		1.00	0.00		0.04
Lane Grp Cap(c), veh/h	439	0	534	393	543	0	1072	0	906	0	0	1061
V/C Ratio(X)	0.15	0.00	0.25	0.48	0.15	0.00	0.82	0.00	0.11	0.00	0.00	0.85
Avail Cap(c_a), veh/h	530	0	661	480	672	0	1641	0	1402	0	0	1642
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	21.0	0.0	19.7	25.0	19.1	0.0	12.6	0.0	7.1	0.0	0.0	12.9
Incr Delay (d2), s/veh	0.1	0.0	0.2	0.7	0.1	0.0	2.7	0.0	0.1	0.0	0.0	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	1.6	2.8	1.0	0.0	9.3	0.0	0.6	0.0	0.0	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.1	0.0	19.9	25.7	19.1	0.0	15.4	0.0	7.2	0.0	0.0	16.1
LnGrp LOS	C	A	B	C	B	A	B	A	A	A	A	B
Approach Vol, veh/h		201			271			988			897	
Approach Delay, s/veh		20.3			23.7			14.5			16.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		47.3		25.0		47.3		25.0				
Change Period (Y+Rc), s		6.0		5.0		6.0		5.0				
Max Green Setting (Gmax), s		64.0		25.0		64.0		25.0				
Max Q Clear Time (g_c+I1), s		32.6		7.2		31.0		15.9				
Green Ext Time (p_c), s		8.7		0.5		8.0		0.6				

Intersection Summary			
HCM 6th Ctrl Delay			16.7
HCM 6th LOS			B

HCM 6th Signalized Intersection Summary
5: Lake Avenue & Moriches Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	88	152	21	149	30	98	178	12	15	185	0
Future Volume (veh/h)	1	88	152	21	149	30	98	178	12	15	185	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1945	1945	1945	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	96	0	23	162	33	107	193	13	16	201	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	100	578		148	549	512	678	819	55	673	885	0
Arrive On Green	0.31	0.31	0.00	0.31	0.31	0.31	0.47	0.47	0.41	0.47	0.47	0.00
Sat Flow, veh/h	6	1860	1585	123	1767	1648	1181	1733	117	1176	1870	0
Grp Volume(v), veh/h	97	0	0	185	0	33	107	0	206	16	201	0
Grp Sat Flow(s),veh/h/ln	1867	0	1585	1891	0	1648	1181	0	1849	1176	1870	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.5	2.2	0.0	2.5	0.3	2.3	0.0
Cycle Q Clear(g_c), s	1.4	0.0	0.0	2.7	0.0	0.5	4.5	0.0	2.5	2.8	2.3	0.0
Prop In Lane	0.01		1.00	0.12		1.00	1.00		0.06	1.00		0.00
Lane Grp Cap(c), veh/h	678	0		697	0	512	678	0	875	673	885	0
V/C Ratio(X)	0.14	0.00		0.27	0.00	0.06	0.16	0.00	0.24	0.02	0.23	0.00
Avail Cap(c_a), veh/h	1256	0		1270	0	1025	1269	0	1799	1261	1820	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	9.3	0.0	0.0	9.7	0.0	9.0	7.1	0.0	5.8	6.6	5.8	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.8	0.0	0.1	0.4	0.0	0.6	0.1	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.4	0.0	0.0	9.9	0.0	9.0	7.2	0.0	6.0	6.6	5.9	0.0
LnGrp LOS	A	A		A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		97	A		218			313			217	
Approach Delay, s/veh		9.4			9.8			6.4			5.9	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		21.5		15.5		21.5		15.5				
Change Period (Y+Rc), s		* 6.5		5.5		* 6.5		5.5				
Max Green Setting (Gmax), s		* 34		21.5		* 34		21.5				
Max Q Clear Time (g_c+I1), s		6.5		3.4		4.8		4.7				
Green Ext Time (p_c), s		1.2		0.2		0.7		0.6				

Intersection Summary				
HCM 6th Ctrl Delay			7.5	
HCM 6th LOS			A	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th AWSC
6: Moriches Road & Evon Lane/Mills Pond Road

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	8	4	109	22	16	1	130	131	8	119	1
Future Vol, veh/h	1	8	4	109	22	16	1	130	131	8	119	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	9	4	116	23	17	1	138	139	9	127	1
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	8.2	10.1	9.4	8.8
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	8%	83%	0%	6%
Vol Thru, %	50%	62%	17%	0%	93%
Vol Right, %	50%	31%	0%	100%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	262	13	131	16	128
LT Vol	1	1	109	0	8
Through Vol	130	8	22	0	119
RT Vol	131	4	0	16	1
Lane Flow Rate	279	14	139	17	136
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.331	0.019	0.228	0.022	0.179
Departure Headway (Hd)	4.281	5.031	5.879	4.754	4.727
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	839	706	609	749	757
Service Time	2.313	3.1	3.635	2.509	2.767
HCM Lane V/C Ratio	0.333	0.02	0.228	0.023	0.18
HCM Control Delay	9.4	8.2	10.4	7.6	8.8
HCM Lane LOS	A	A	B	A	A
HCM 95th-tile Q	1.5	0.1	0.9	0.1	0.6

HCM 6th Signalized Intersection Summary
7: Woodlawn Avenue/Gated & Moriches Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	0	235	0	0	0	214	271	0	0	224	42
Future Volume (veh/h)	43	0	235	0	0	0	214	271	0	0	224	42
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870				1870	1945	0	0	1870	1870
Adj Flow Rate, veh/h	47	0	255				233	295	0	0	243	46
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2				2	2	0	0	2	2
Cap, veh/h	256	0	504				699	1247	0	0	549	104
Arrive On Green	0.14	0.00	0.14				0.17	0.64	0.00	0.00	0.36	0.36
Sat Flow, veh/h	1781	0	1585				1781	1945	0	0	1529	289
Grp Volume(v), veh/h	47	0	255				233	295	0	0	0	289
Grp Sat Flow(s),veh/h/ln	1781	0	1585				1781	1945	0	0	0	1818
Q Serve(g_s), s	1.3	0.0	7.3				3.6	3.6	0.0	0.0	0.0	6.8
Cycle Q Clear(g_c), s	1.3	0.0	7.3				3.6	3.6	0.0	0.0	0.0	6.8
Prop In Lane	1.00		1.00				1.00		0.00	0.00		0.16
Lane Grp Cap(c), veh/h	256	0	504				699	1247	0	0	0	653
V/C Ratio(X)	0.18	0.00	0.51				0.33	0.24	0.00	0.00	0.00	0.44
Avail Cap(c_a), veh/h	256	0	504				708	2024	0	0	0	1370
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	21.0	0.0	15.4				6.8	4.2	0.0	0.0	0.0	13.6
Incr Delay (d2), s/veh	0.3	0.0	0.8				0.3	0.1	0.0	0.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.1				1.1	1.0	0.0	0.0	0.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.3	0.0	16.3				7.1	4.3	0.0	0.0	0.0	14.1
LnGrp LOS	C	A	B				A	A	A	A	A	B
Approach Vol, veh/h		302						528			289	
Approach Delay, s/veh		17.0						5.5			14.1	
Approach LOS		B						A			B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		41.7		14.0	15.7	26.0
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		58.0		8.0	10.0	42.0
Max Q Clear Time (g_c+I1), s		5.6		9.3	5.6	8.8
Green Ext Time (p_c), s		1.2		0.0	0.3	1.2

Intersection Summary			
HCM 6th Ctrl Delay			10.9
HCM 6th LOS			B

HCM 6th Signalized Intersection Summary
8: Moriches Road & NYS 347

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	1477	20	21	2202	317	3	30	10	256	57	72
Future Volume (veh/h)	93	1477	20	21	2202	317	3	30	10	256	57	72
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	96	1523	21	22	2270	0	3	31	10	264	59	74
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	123	3208	966	47	2926		241	88	96	345	100	194
Arrive On Green	0.07	0.63	0.61	0.01	0.57	0.00	0.07	0.05	0.05	0.10	0.05	0.05
Sat Flow, veh/h	1781	5106	1585	3456	5106	1585	3456	1870	1585	3456	1870	1585
Grp Volume(v), veh/h	96	1523	21	22	2270	0	3	31	10	264	59	74
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1728	1702	1585	1728	1870	1585	1728	1870	1585
Q Serve(g_s), s	5.6	16.8	0.3	0.7	36.4	0.0	0.1	1.7	0.6	7.9	3.3	3.2
Cycle Q Clear(g_c), s	5.6	16.8	0.3	0.7	36.4	0.0	0.1	1.7	0.6	7.9	3.3	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	123	3208	966	47	2926		241	88	96	345	100	194
V/C Ratio(X)	0.78	0.47	0.02	0.47	0.78		0.01	0.35	0.10	0.77	0.59	0.38
Avail Cap(c_a), veh/h	251	4320	1311	812	4815		585	431	386	585	431	474
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.7	10.5	1.8	52.1	17.5	0.0	46.1	49.1	47.2	46.7	49.2	22.5
Incr Delay (d2), s/veh	10.4	0.1	0.0	7.2	0.5	0.0	0.0	2.4	0.5	3.6	5.4	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	5.2	0.2	0.3	12.2	0.0	0.0	0.8	0.3	3.5	1.7	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.1	10.6	1.8	59.3	17.9	0.0	46.1	51.5	47.7	50.2	54.6	23.8
LnGrp LOS	E	B	A	E	B		D	D	D	D	D	C
Approach Vol, veh/h		1640			2292	A		44			397	
Approach Delay, s/veh		13.3			18.3			50.3			46.0	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.6	12.5	6.4	71.8	14.9	13.2	12.3	65.9
Change Period (Y+Rc), s	5.0	7.5	5.0	7.0	7.5	* 7.5	5.0	* 7
Max Green Setting (Gmax), s	18.0	24.5	25.0	88.0	18.0	* 25	15.0	* 98
Max Q Clear Time (g_c+I1), s	9.9	3.7	2.7	18.8	2.1	5.3	7.6	38.4
Green Ext Time (p_c), s	0.7	0.1	0.0	9.7	0.0	0.4	0.1	20.6

Intersection Summary	
HCM 6th Ctrl Delay	19.3
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
9: NYS 25A & Main Street

Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	655	54	168	606	67	258		
Future Volume (veh/h)	655	54	168	606	67	258		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Work Zone On Approach	No		No			No		
Adj Sat Flow, veh/h/ln	1870	1945	1870	1945	1870	1870		
Adj Flow Rate, veh/h	689	0	177	638	71	272		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	756		493	1134	297	723		
Arrive On Green	0.42	0.00	0.26	0.26	0.04	0.39		
Sat Flow, veh/h	1781	1648	1870	1648	1781	1870		
Grp Volume(v), veh/h	689	0	177	638	71	272		
Grp Sat Flow(s),veh/h/ln	1781	1648	1870	1648	1781	1870		
Q Serve(g_s), s	26.9	0.0	5.7	14.6	2.1	7.7		
Cycle Q Clear(g_c), s	26.9	0.0	5.7	14.6	2.1	7.7		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	756		493	1134	297	723		
V/C Ratio(X)	0.91		0.36	0.56	0.24	0.38		
Avail Cap(c_a), veh/h	938		657	1278	319	909		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	20.0	0.0	22.2	5.9	17.6	16.3		
Incr Delay (d2), s/veh	11.2	0.0	0.4	0.4	0.4	0.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	12.4	0.0	2.5	11.4	0.8	3.2		
Unsig. Movement Delay, s/veh								
LnGrp Delay(d),s/veh	31.2	0.0	22.6	6.3	18.0	16.6		
LnGrp LOS	C		C	A	B	B		
Approach Vol, veh/h	689	A	815			343		
Approach Delay, s/veh	31.2		9.9			16.9		
Approach LOS	C		A			B		
Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	9.1	27.5				36.6		37.4
Change Period (Y+Rc), s	6.0	8.0				8.0		6.0
Max Green Setting (Gmax), s	4.0	26.0				36.0		39.0
Max Q Clear Time (g_c+I1), s	4.1	16.6				9.7		28.9
Green Ext Time (p_c), s	0.0	2.9				1.0		2.5
Intersection Summary								
HCM 6th Ctrl Delay			19.1					
HCM 6th LOS			B					

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
10: Stony Brook Road & South Drive

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	83	100	351	728	339	181
Future Volume (veh/h)	83	100	351	728	339	181
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	90	109	382	791	368	197
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	530	471	1000	847	265	95
Arrive On Green	0.30	0.30	0.53	0.53	0.53	0.53
Sat Flow, veh/h	1781	1585	1870	1585	327	177
Grp Volume(v), veh/h	90	109	382	791	565	0
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	504	0
Q Serve(g_s), s	2.4	3.4	7.8	30.3	27.2	0.0
Cycle Q Clear(g_c), s	2.4	3.4	7.8	30.3	35.0	0.0
Prop In Lane	1.00	1.00		1.00	0.65	
Lane Grp Cap(c), veh/h	530	471	1000	847	360	0
V/C Ratio(X)	0.17	0.23	0.38	0.93	1.57	0.00
Avail Cap(c_a), veh/h	980	872	1000	847	360	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.0	17.4	8.9	14.1	22.5	0.0
Incr Delay (d2), s/veh	0.2	0.2	0.2	17.0	269.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.2	2.7	12.8	32.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.2	17.6	9.1	31.2	291.6	0.0
LnGrp LOS	B	B	A	C	F	A
Approach Vol, veh/h	199		1173			565
Approach Delay, s/veh	17.4		24.0			291.6
Approach LOS	B		C			F

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	41.0	41.0	24.5
Change Period (Y+Rc), s	6.0	6.0	5.0
Max Green Setting (Gmax), s	35.0	35.0	36.0
Max Q Clear Time (g_c+I1), s	32.3	37.0	5.4
Green Ext Time (p_c), s	1.5	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	101.4
HCM 6th LOS	F

HCM 6th Signalized Intersection Summary
11: Oxhead Road & Stony Brook Road

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	42	200	887	36	97	186
Future Volume (veh/h)	42	200	887	36	97	186
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1976	1976	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	217	964	39	105	202
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	54	255	1150	47	156	267
Arrive On Green	0.18	0.18	0.64	0.64	0.64	0.64
Sat Flow, veh/h	293	1382	1785	72	125	415
Grp Volume(v), veh/h	264	0	0	1003	307	0
Grp Sat Flow(s),veh/h/ln	1682	0	0	1857	540	0
Q Serve(g_s), s	9.8	0.0	0.0	26.8	11.0	0.0
Cycle Q Clear(g_c), s	9.8	0.0	0.0	26.8	37.8	0.0
Prop In Lane	0.17	0.82		0.04	0.34	
Lane Grp Cap(c), veh/h	310	0	0	1197	423	0
V/C Ratio(X)	0.85	0.00	0.00	0.84	0.73	0.00
Avail Cap(c_a), veh/h	367	0	0	1389	531	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	25.3	0.0	0.0	8.8	12.4	0.0
Incr Delay (d2), s/veh	15.2	0.0	0.0	4.2	3.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	0.0	8.9	2.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	40.5	0.0	0.0	13.0	16.1	0.0
LnGrp LOS	D	A	A	B	B	A
Approach Vol, veh/h	264		1003			307
Approach Delay, s/veh	40.5		13.0			16.1
Approach LOS	D		B			B

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	47.4	47.4	16.8
Change Period (Y+Rc), s	6.0	6.0	5.0
Max Green Setting (Gmax), s	48.0	48.0	14.0
Max Q Clear Time (g_c+I1), s	28.8	39.8	11.8
Green Ext Time (p_c), s	4.1	1.6	0.2

Intersection Summary	
HCM 6th Ctrl Delay	18.2
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
12: Hallock Road & Stony Brook Road

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	115	13	15	787	298	31
Future Volume (veh/h)	115	13	15	787	298	31
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	119	13	15	811	307	32
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	294	261	624	1026	914	95
Arrive On Green	0.16	0.16	0.55	0.55	0.55	0.55
Sat Flow, veh/h	1781	1585	1041	1870	1666	174
Grp Volume(v), veh/h	119	13	15	811	0	339
Grp Sat Flow(s),veh/h/ln	1781	1585	1041	1870	0	1839
Q Serve(g_s), s	2.7	0.3	0.4	15.7	0.0	4.6
Cycle Q Clear(g_c), s	2.7	0.3	5.0	15.7	0.0	4.6
Prop In Lane	1.00	1.00	1.00			0.09
Lane Grp Cap(c), veh/h	294	261	624	1026	0	1009
V/C Ratio(X)	0.40	0.05	0.02	0.79	0.00	0.34
Avail Cap(c_a), veh/h	353	314	1200	2061	0	2027
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.0	16.0	7.1	8.2	0.0	5.7
Incr Delay (d2), s/veh	0.9	0.1	0.0	1.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.1	0.1	4.4	0.0	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.9	16.0	7.1	9.6	0.0	5.9
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	132			826	339	
Approach Delay, s/veh	17.7			9.5	5.9	
Approach LOS	B			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		30.9		14.5		30.9
Change Period (Y+Rc), s		6.0		8.0		6.0
Max Green Setting (Gmax), s		50.0		8.0		50.0
Max Q Clear Time (g_c+I1), s		17.7		4.7		6.6
Green Ext Time (p_c), s		7.2		0.1		2.3

Intersection Summary			
HCM 6th Ctrl Delay			9.4
HCM 6th LOS			A

HCM 6th Signalized Intersection Summary
13: NYS 347 & Stony Brook Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	459	1405	33	85	2413	121	64	207	135	168	82	141
Future Volume (veh/h)	459	1405	33	85	2413	121	64	207	135	168	82	141
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1945	1870	1870	1870	1870	1870	1945	1870	1870	1870
Adj Flow Rate, veh/h	473	1448	34	88	2488	125	66	213	139	173	85	145
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	551	1572	708	267	2276	686	303	313	259	265	409	331
Arrive On Green	0.16	0.44	0.43	0.15	0.45	0.43	0.04	0.17	0.16	0.09	0.22	0.21
Sat Flow, veh/h	3456	3554	1648	1781	5106	1585	1781	1870	1648	1781	1870	1585
Grp Volume(v), veh/h	473	1448	34	88	2488	125	66	213	139	173	85	145
Grp Sat Flow(s),veh/h/ln	1728	1777	1648	1781	1702	1585	1781	1870	1648	1781	1870	1585
Q Serve(g_s), s	20.3	58.5	1.4	6.7	68.0	7.4	4.7	16.3	8.5	12.1	5.7	12.2
Cycle Q Clear(g_c), s	20.3	58.5	1.4	6.7	68.0	7.4	4.7	16.3	8.5	12.1	5.7	12.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	551	1572	708	267	2276	686	303	313	259	265	409	331
V/C Ratio(X)	0.86	0.92	0.05	0.33	1.09	0.18	0.22	0.68	0.54	0.65	0.21	0.44
Avail Cap(c_a), veh/h	1019	1677	756	479	2276	686	392	362	302	297	409	331
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.4	40.0	15.3	58.0	42.3	26.7	50.8	59.7	30.8	47.1	48.8	52.6
Incr Delay (d2), s/veh	4.0	8.5	0.0	0.7	49.8	0.1	0.4	4.3	1.7	4.3	0.2	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	26.1	0.7	3.0	37.5	2.8	2.2	8.2	3.5	5.7	2.7	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.4	48.5	15.4	58.7	92.1	26.8	51.2	64.0	32.5	51.4	49.0	53.5
LnGrp LOS	E	D	B	E	F	C	D	E	C	D	D	D
Approach Vol, veh/h		1955			2701			418			403	
Approach Delay, s/veh		52.3			88.0			51.5			51.7	
Approach LOS		D			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.2	30.0	29.8	72.5	12.4	37.9	29.4	73.0
Change Period (Y+Rc), s	6.0	6.0	7.0	* 7	6.0	6.0	5.0	7.0
Max Green Setting (Gmax), s	17.0	28.0	41.0	* 70	14.0	31.0	45.0	66.0
Max Q Clear Time (g_c+I1), s	14.1	18.3	8.7	60.5	6.7	14.2	22.3	70.0
Green Ext Time (p_c), s	0.2	1.0	0.3	5.0	0.1	0.8	2.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	69.8
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
17: Stony Brook Road & Development Drive

Intersection						
Int Delay, s/veh	2.8					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	49	183	229	480	56
Future Vol, veh/h	16	49	183	229	480	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	260	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	53	197	246	516	60

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1186	546	576	0	-	0
Stage 1	546	-	-	-	-	-
Stage 2	640	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	208	538	997	-	-	-
Stage 1	580	-	-	-	-	-
Stage 2	525	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	160	538	997	-	-	-
Mov Cap-2 Maneuver	160	-	-	-	-	-
Stage 1	447	-	-	-	-	-
Stage 2	525	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.8	4.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	997	-	160	538	-	-
HCM Lane V/C Ratio	0.197	-	0.108	0.098	-	-
HCM Control Delay (s)	9.5	0	30.2	12.4	-	-
HCM Lane LOS	A	A	D	B	-	-
HCM 95th %tile Q(veh)	0.7	-	0.4	0.3	-	-

HCM 6th TWSC
21: Stony Brook Road & Stony Brook Rd WB Right

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Vol, veh/h	0	386	151	107	107	0
Future Vol, veh/h	0	386	151	107	107	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	406	159	113	113	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	622	-
Stage 1	-	-	-	-	216	-
Stage 2	-	-	-	-	406	-
Critical Hdwy	-	-	-	-	6.42	-
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	-
Pot Cap-1 Maneuver	0	-	-	-	450	0
Stage 1	0	-	-	-	820	0
Stage 2	0	-	-	-	673	0
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	450	-
Mov Cap-2 Maneuver	-	-	-	-	450	-
Stage 1	-	-	-	-	820	-
Stage 2	-	-	-	-	673	-

Approach	EB	WB	SE
HCM Control Delay, s	0	0	15.7
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SELn1
Capacity (veh/h)	-	-	-	450
HCM Lane V/C Ratio	-	-	-	0.25
HCM Control Delay (s)	-	-	-	15.7
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	1

HCM 6th TWSC
22: 25A & Stony Brook Rd WB Right

Intersection						
Int Delay, s/veh	1.6					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	107	647	0	107	817
Future Vol, veh/h	0	107	647	0	107	817
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	120	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	113	681	0	113	860

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	681	0	-	681	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	0	450	-	0	912	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	450	-	-	912	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.7	0	1.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	450	912	-
HCM Lane V/C Ratio	-	0.25	0.123	-
HCM Control Delay (s)	-	15.7	9.5	-
HCM Lane LOS	-	C	A	-
HCM 95th %tile Q(veh)	-	1	0.4	-

HCM 6th TWSC
1: Mills Pond Road & NYS Route 25A

Intersection						
Int Delay, s/veh	28.4					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1131	56	104	939	50	169
Future Vol, veh/h	1131	56	104	939	50	169
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	1191	59	109	988	53	178

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1250	0	2427	1221
Stage 1	-	-	-	-	1221	-
Stage 2	-	-	-	-	1206	-
Critical Hdwy	-	-	4.11	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	560	-	~ 36	221
Stage 1	-	-	-	-	281	-
Stage 2	-	-	-	-	286	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	560	-	~ 20	221
Mov Cap-2 Maneuver	-	-	-	-	~ 20	-
Stage 1	-	-	-	-	160	-
Stage 2	-	-	-	-	286	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	$ 311.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	20	221	-	-	560	-
HCM Lane V/C Ratio	2.632	0.805	-	-	0.195	-
HCM Control Delay (s)	$ 1142	65.9	-	-	13	0
HCM Lane LOS	F	F	-	-	B	A
HCM 95th %tile Q(veh)	6.9	5.9	-	-	0.7	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th TWSC
2: 25A & Stony Brook Road

Intersection	
Int Delay, s/veh	19.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	245	0	952	342	0	812
Future Vol, veh/h	245	0	952	342	0	812
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Free	-	Free
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	253	0	981	353	0	837

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1818	-	0	-	-	-
Stage 1	981	-	-	-	-	-
Stage 2	837	-	-	-	-	-
Critical Hdwy	6.42	-	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	-	-
Pot Cap-1 Maneuver	~ 86	0	-	0	0	-
Stage 1	363	0	-	0	0	-
Stage 2	425	0	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	~ 86	-	-	-	-	-
Mov Cap-2 Maneuver	~ 218	-	-	-	-	-
Stage 1	363	-	-	-	-	-
Stage 2	425	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	156.6	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	218	-
HCM Lane V/C Ratio	-	1.159	-
HCM Control Delay (s)	-	156.6	-
HCM Lane LOS	-	F	-
HCM 95th %tile Q(veh)	-	12.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

HCM 6th TWSC
3: Lake Avenue/Fire Dept & Route 25A

Intersection	
Int Delay, s/veh	9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1037	10	230	880	0	0	0	303	0	0	0
Future Vol, veh/h	0	1037	10	230	880	0	0	0	303	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	250	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1127	11	250	957	0	0	0	329	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	957	0	0	1138	0	0	-	2590	1133	2754	2595	957
Stage 1	-	-	-	-	-	-	-	1133	-	1457	1457	-
Stage 2	-	-	-	-	-	-	-	1457	-	1297	1138	-
Critical Hdwy	4.12	-	-	4.12	-	-	-	5	5	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	-	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	-	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	719	-	-	614	-	0	0	75	362	13	25	313
Stage 1	-	-	-	-	-	0	0	278	-	161	194	-
Stage 2	-	-	-	-	-	0	0	194	-	199	276	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	719	-	-	614	-	-	-	44	362	1	15	313
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	44	-	1	15	-
Stage 1	-	-	-	-	-	-	-	278	-	161	115	-
Stage 2	-	-	-	-	-	-	-	115	-	18	276	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.1	61.6	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	362	719	-	-	614	-	-
HCM Lane V/C Ratio	-	0.91	-	-	-	0.407	-	-
HCM Control Delay (s)	0	61.6	0	-	-	14.8	-	0
HCM Lane LOS	A	F	A	-	-	B	-	A
HCM 95th %tile Q(veh)	-	9.3	0	-	-	2	-	-

HCM 6th Signalized Intersection Summary
4: Route 25A & Moriches Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	96	130	8	172	133	0	22	943	185	0	839	52
Future Volume (veh/h)	96	130	8	172	133	0	22	943	185	0	839	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	0	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	101	137	8	181	140	0	23	993	195	0	883	55
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	0	2	2	2	0	2	2
Cap, veh/h	316	429	25	311	459	0	55	1130	1008	0	1129	70
Arrive On Green	0.25	0.25	0.23	0.25	0.25	0.00	0.64	0.65	0.64	0.00	0.65	0.64
Sat Flow, veh/h	1249	1750	102	1243	1870	0	17	1743	1585	0	1742	109
Grp Volume(v), veh/h	101	0	145	181	140	0	1016	0	195	0	0	938
Grp Sat Flow(s),veh/h/ln	1249	0	1852	1243	1870	0	1761	0	1585	0	0	1851
Q Serve(g_s), s	6.1	0.0	5.4	11.8	5.1	0.0	11.4	0.0	4.3	0.0	0.0	30.5
Cycle Q Clear(g_c), s	11.2	0.0	5.4	17.2	5.1	0.0	41.9	0.0	4.3	0.0	0.0	30.5
Prop In Lane	1.00		0.06	1.00		0.00	0.02		1.00	0.00		0.06
Lane Grp Cap(c), veh/h	316	0	454	311	459	0	1164	0	1008	0	0	1199
V/C Ratio(X)	0.32	0.00	0.32	0.58	0.31	0.00	0.87	0.00	0.19	0.00	0.00	0.78
Avail Cap(c_a), veh/h	394	0	571	389	577	0	1383	0	1204	0	0	1427
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	30.5	0.0	26.1	33.1	25.9	0.0	12.1	0.0	6.4	0.0	0.0	10.6
Incr Delay (d2), s/veh	0.4	0.0	0.3	1.3	0.3	0.0	6.1	0.0	0.1	0.0	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	2.3	3.5	2.2	0.0	13.1	0.0	1.1	0.0	0.0	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.9	0.0	26.4	34.4	26.2	0.0	18.1	0.0	6.5	0.0	0.0	13.4
LnGrp LOS	C	A	C	C	C	A	B	A	A	A	A	B
Approach Vol, veh/h		246			321			1211			938	
Approach Delay, s/veh		28.2			30.8			16.3			13.4	
Approach LOS		C			C			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		59.6		24.7		59.6		24.7				
Change Period (Y+Rc), s		6.0		5.0		6.0		5.0				
Max Green Setting (Gmax), s		64.0		25.0		64.0		25.0				
Max Q Clear Time (g_c+I1), s		43.9		13.2		32.5		19.2				
Green Ext Time (p_c), s		9.7		0.5		8.6		0.5				

Intersection Summary			
HCM 6th Ctrl Delay			18.1
HCM 6th LOS			B

HCM 6th Signalized Intersection Summary
5: Lake Avenue & Moriches Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	142	175	18	146	66	169	239	19	34	202	0
Future Volume (veh/h)	0	142	175	18	146	66	169	239	19	34	202	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1945	1945	1945	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	145	0	18	149	67	172	244	19	35	206	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	581		139	558	512	674	810	63	624	885	0
Arrive On Green	0.00	0.31	0.00	0.31	0.31	0.31	0.47	0.47	0.41	0.47	0.47	0.00
Sat Flow, veh/h	0	1870	1585	101	1794	1648	1176	1713	133	1116	1870	0
Grp Volume(v), veh/h	0	145	0	167	0	67	172	0	263	35	206	0
Grp Sat Flow(s),veh/h/ln	0	1870	1585	1894	0	1648	1176	0	1846	1116	1870	0
Q Serve(g_s), s	0.0	2.1	0.0	0.0	0.0	1.1	3.8	0.0	3.3	0.7	2.4	0.0
Cycle Q Clear(g_c), s	0.0	2.1	0.0	2.4	0.0	1.1	6.2	0.0	3.3	4.0	2.4	0.0
Prop In Lane	0.00		1.00	0.11		1.00	1.00		0.07	1.00		0.00
Lane Grp Cap(c), veh/h	0	581		697	0	512	674	0	873	624	885	0
V/C Ratio(X)	0.00	0.25		0.24	0.00	0.13	0.26	0.00	0.30	0.06	0.23	0.00
Avail Cap(c_a), veh/h	0	1163		1270	0	1025	1739	0	2545	1635	2578	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	9.5	0.0	9.6	0.0	9.2	7.6	0.0	6.1	7.2	5.8	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.2	0.0	0.1	0.2	0.0	0.2	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.0	0.7	0.0	0.3	0.7	0.0	0.8	0.1	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	9.7	0.0	9.8	0.0	9.3	7.8	0.0	6.2	7.3	5.9	0.0
LnGrp LOS	A	A		A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		145	A		234			435			241	
Approach Delay, s/veh		9.7			9.6			6.9			6.1	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		21.5		15.5		21.5		15.5
Change Period (Y+Rc), s		* 6.5		5.5		* 6.5		5.5
Max Green Setting (Gmax), s		* 49		21.5		* 49		21.5
Max Q Clear Time (g_c+I1), s		8.2		4.1		6.0		4.4
Green Ext Time (p_c), s		1.8		0.4		0.9		0.7

Intersection Summary	
HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th AWSC
6: Moriches Road & Evon Lane/Mills Pond Road

Intersection	
Intersection Delay, s/veh	15.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	28	7	195	33	9	14	236	215	8	181	1
Future Vol, veh/h	1	28	7	195	33	9	14	236	215	8	181	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	29	7	205	35	9	15	248	226	8	191	1
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	9.9	14.8	17.8	11.3
HCM LOS	A	B	C	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	3%	3%	86%	0%	4%
Vol Thru, %	51%	78%	14%	0%	95%
Vol Right, %	46%	19%	0%	100%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	465	36	228	9	190
LT Vol	14	1	195	0	8
Through Vol	236	28	33	0	181
RT Vol	215	7	0	9	1
Lane Flow Rate	489	38	240	9	200
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.675	0.067	0.454	0.015	0.313
Departure Headway (Hd)	4.967	6.333	6.81	5.663	5.635
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	724	563	528	631	636
Service Time	3.01	4.404	4.557	3.41	3.689
HCM Lane V/C Ratio	0.675	0.067	0.455	0.014	0.314
HCM Control Delay	17.8	9.9	15.1	8.5	11.3
HCM Lane LOS	C	A	C	A	B
HCM 95th-tile Q	5.3	0.2	2.3	0	1.3

HCM 6th Signalized Intersection Summary
7: Woodlawn Avenue/Gated & Moriches Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	0	416	0	0	0	323	430	0	0	427	51
Future Volume (veh/h)	76	0	416	0	0	0	323	430	0	0	427	51
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870				1870	1945	0	0	1870	1870
Adj Flow Rate, veh/h	80	0	438				340	453	0	0	449	54
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	0	2				2	2	0	0	2	2
Cap, veh/h	255	0	509				548	1250	0	0	585	70
Arrive On Green	0.14	0.00	0.14				0.18	0.64	0.00	0.00	0.36	0.36
Sat Flow, veh/h	1781	0	1585				1781	1945	0	0	1638	197
Grp Volume(v), veh/h	80	0	438				340	453	0	0	0	503
Grp Sat Flow(s),veh/h/ln	1781	0	1585				1781	1945	0	0	0	1835
Q Serve(g_s), s	2.3	0.0	8.0				5.7	6.1	0.0	0.0	0.0	13.6
Cycle Q Clear(g_c), s	2.3	0.0	8.0				5.7	6.1	0.0	0.0	0.0	13.6
Prop In Lane	1.00		1.00				1.00		0.00	0.00		0.11
Lane Grp Cap(c), veh/h	255	0	509				548	1250	0	0	0	656
V/C Ratio(X)	0.31	0.00	0.86				0.62	0.36	0.00	0.00	0.00	0.77
Avail Cap(c_a), veh/h	255	0	509				550	2016	0	0	0	1377
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	21.5	0.0	17.8				9.7	4.7	0.0	0.0	0.0	15.9
Incr Delay (d2), s/veh	0.7	0.0	14.0				2.1	0.2	0.0	0.0	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	2.0				1.9	1.6	0.0	0.0	0.0	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.2	0.0	31.9				11.8	4.8	0.0	0.0	0.0	17.8
LnGrp LOS	C	A	C				B	A	A	A	A	B
Approach Vol, veh/h		518						793			503	
Approach Delay, s/veh		30.4						7.8			17.8	
Approach LOS		C						A			B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		41.9		14.0	15.9	26.0
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		58.0		8.0	10.0	42.0
Max Q Clear Time (g_c+I1), s		8.1		10.0	7.7	15.6
Green Ext Time (p_c), s		2.0		0.0	0.3	2.2

Intersection Summary			
HCM 6th Ctrl Delay			17.0
HCM 6th LOS			B

HCM 6th Signalized Intersection Summary
8: Moriches Road & NYS 347

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	1683	102	173	1720	305	107	157	111	320	213	130
Future Volume (veh/h)	160	1683	102	173	1720	305	107	157	111	320	213	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	168	1772	107	182	1811	0	113	165	117	337	224	137
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	2495	746	259	2309		226	209	296	414	269	404
Arrive On Green	0.11	0.49	0.47	0.07	0.45	0.00	0.07	0.11	0.11	0.12	0.14	0.14
Sat Flow, veh/h	1781	5106	1585	3456	5106	1585	3456	1870	1585	3456	1870	1585
Grp Volume(v), veh/h	168	1772	107	182	1811	0	113	165	117	337	224	137
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1728	1702	1585	1728	1870	1585	1728	1870	1585
Q Serve(g_s), s	10.2	29.9	2.6	5.7	33.1	0.0	3.5	9.4	7.1	10.5	12.8	5.2
Cycle Q Clear(g_c), s	10.2	29.9	2.6	5.7	33.1	0.0	3.5	9.4	7.1	10.5	12.8	5.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	198	2495	746	259	2309		226	209	296	414	269	404
V/C Ratio(X)	0.85	0.71	0.14	0.70	0.78		0.50	0.79	0.40	0.81	0.83	0.34
Avail Cap(c_a), veh/h	243	3483	1052	786	3961		566	417	472	566	417	530
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.9	22.0	6.5	49.7	25.6	0.0	49.7	47.5	39.2	47.2	45.8	16.0
Incr Delay (d2), s/veh	20.1	0.4	0.1	3.5	0.6	0.0	1.7	6.5	0.9	6.4	8.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	10.8	1.4	2.5	12.2	0.0	1.5	4.7	2.7	4.8	6.5	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.1	22.4	6.6	53.1	26.2	0.0	51.4	54.0	40.1	53.6	54.0	16.5
LnGrp LOS	E	C	A	D	C		D	D	D	D	D	B
Approach Vol, veh/h		2047			1993	A		395			698	
Approach Delay, s/veh		25.3			28.6			49.1			46.5	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.2	19.8	13.2	58.7	14.7	23.3	17.2	54.7
Change Period (Y+Rc), s	5.0	7.5	5.0	7.0	7.5	* 7.5	5.0	* 7
Max Green Setting (Gmax), s	18.0	24.5	25.0	73.0	18.0	* 25	15.0	* 83
Max Q Clear Time (g_c+I1), s	12.5	11.4	7.7	31.9	5.5	14.8	12.2	35.1
Green Ext Time (p_c), s	0.7	0.9	0.6	12.7	0.3	1.0	0.1	12.6

Intersection Summary	
HCM 6th Ctrl Delay	31.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
9: NYS 25A & Main Street

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	727	84	318	834	91	224
Future Volume (veh/h)	727	84	318	834	91	224
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1945	1870	1945	1870	1870
Adj Flow Rate, veh/h	757	0	331	869	95	233
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	780		547	1204	226	757
Arrive On Green	0.44	0.00	0.29	0.29	0.04	0.40
Sat Flow, veh/h	1781	1648	1870	1648	1781	1870
Grp Volume(v), veh/h	757	0	331	869	95	233
Grp Sat Flow(s),veh/h/ln	1781	1648	1870	1648	1781	1870
Q Serve(g_s), s	37.0	0.0	13.5	26.0	3.2	7.5
Cycle Q Clear(g_c), s	37.0	0.0	13.5	26.0	3.2	7.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	780		547	1204	226	757
V/C Ratio(X)	0.97		0.61	0.72	0.42	0.31
Avail Cap(c_a), veh/h	781		547	1204	226	757
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	0.0	27.1	6.7	21.0	18.0
Incr Delay (d2), s/veh	25.0	0.0	1.9	2.2	1.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.9	0.0	6.2	19.7	1.4	3.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	49.4	0.0	29.0	8.9	22.2	18.2
LnGrp LOS	D		C	A	C	B
Approach Vol, veh/h	757	A	1200			328
Approach Delay, s/veh	49.4		14.4			19.4
Approach LOS	D		B			B

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.0	34.0				44.0		45.0
Change Period (Y+Rc), s	6.0	8.0				8.0		6.0
Max Green Setting (Gmax), s	4.0	26.0				36.0		39.0
Max Q Clear Time (g_c+I1), s	5.2	28.0				9.5		39.0
Green Ext Time (p_c), s	0.0	0.0				0.9		0.0

Intersection Summary		
HCM 6th Ctrl Delay		26.7
HCM 6th LOS		C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
10: Stony Brook Road & South Drive

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	683	246	237	356	170	442
Future Volume (veh/h)	683	246	237	356	170	442
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	711	256	247	371	177	460
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	763	679	814	689	190	404
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43
Sat Flow, veh/h	1781	1585	1870	1585	305	928
Grp Volume(v), veh/h	711	256	247	371	637	0
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1233	0
Q Serve(g_s), s	30.6	8.9	6.9	13.9	28.1	0.0
Cycle Q Clear(g_c), s	30.6	8.9	6.9	13.9	35.0	0.0
Prop In Lane	1.00	1.00		1.00	0.28	
Lane Grp Cap(c), veh/h	763	679	814	689	593	0
V/C Ratio(X)	0.93	0.38	0.30	0.54	1.07	0.00
Avail Cap(c_a), veh/h	841	749	814	689	593	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.9	15.7	14.8	16.8	25.6	0.0
Incr Delay (d2), s/veh	16.0	0.3	0.2	0.8	58.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.1	3.1	2.8	4.9	20.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.9	16.0	15.0	17.6	83.8	0.0
LnGrp LOS	D	B	B	B	F	A
Approach Vol, veh/h	967		618			637
Approach Delay, s/veh	32.1		16.6			83.8
Approach LOS	C		B			F

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	41.0	41.0	39.5
Change Period (Y+Rc), s	6.0	6.0	5.0
Max Green Setting (Gmax), s	35.0	35.0	38.0
Max Q Clear Time (g_c+I1), s	15.9	37.0	32.6
Green Ext Time (p_c), s	2.7	0.0	1.9

Intersection Summary	
HCM 6th Ctrl Delay	42.6
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary
11: Oxhead Road & Stony Brook Road

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	114	94	488	140	223	873
Future Volume (veh/h)	114	94	488	140	223	873
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1976	1976	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	99	514	147	235	919
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	140	115	1017	291	218	719
Arrive On Green	0.15	0.15	0.73	0.73	0.73	0.73
Sat Flow, veh/h	957	790	1398	400	231	989
Grp Volume(v), veh/h	220	0	0	661	1154	0
Grp Sat Flow(s),veh/h/ln	1755	0	0	1798	1221	0
Q Serve(g_s), s	10.6	0.0	0.0	13.7	49.3	0.0
Cycle Q Clear(g_c), s	10.6	0.0	0.0	13.7	63.0	0.0
Prop In Lane	0.55	0.45		0.22	0.20	
Lane Grp Cap(c), veh/h	256	0	0	1308	938	0
V/C Ratio(X)	0.86	0.00	0.00	0.51	1.23	0.00
Avail Cap(c_a), veh/h	284	0	0	1308	938	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.1	0.0	0.0	5.1	17.5	0.0
Incr Delay (d2), s/veh	20.9	0.0	0.0	0.3	113.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	0.0	0.0	4.0	46.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	57.1	0.0	0.0	5.4	130.8	0.0
LnGrp LOS	E	A	A	A	F	A
Approach Vol, veh/h	220		661			1154
Approach Delay, s/veh	57.1		5.4			130.8
Approach LOS	E		A			F

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	69.0	69.0	17.6
Change Period (Y+Rc), s	6.0	6.0	5.0
Max Green Setting (Gmax), s	63.0	63.0	14.0
Max Q Clear Time (g_c+I1), s	15.7	65.0	12.6
Green Ext Time (p_c), s	2.4	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	82.1
HCM 6th LOS	F

HCM 6th Signalized Intersection Summary
12: Hallock Road & Stony Brook Road

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	176	38	46	477	840	206
Future Volume (veh/h)	176	38	46	477	840	206
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	178	38	46	482	848	208
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	250	222	203	1224	949	233
Arrive On Green	0.14	0.14	0.65	0.65	0.65	0.65
Sat Flow, veh/h	1781	1585	534	1870	1451	356
Grp Volume(v), veh/h	178	38	46	482	0	1056
Grp Sat Flow(s),veh/h/ln	1781	1585	534	1870	0	1806
Q Serve(g_s), s	6.0	1.3	5.0	7.6	0.0	30.8
Cycle Q Clear(g_c), s	6.0	1.3	35.7	7.6	0.0	30.8
Prop In Lane	1.00	1.00	1.00			0.20
Lane Grp Cap(c), veh/h	250	222	203	1224	0	1182
V/C Ratio(X)	0.71	0.17	0.23	0.39	0.00	0.89
Avail Cap(c_a), veh/h	254	226	277	1480	0	1429
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.0	23.9	24.0	5.1	0.0	9.1
Incr Delay (d2), s/veh	8.9	0.4	0.6	0.2	0.0	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.5	0.6	2.1	0.0	10.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.9	24.3	24.5	5.3	0.0	15.7
LnGrp LOS	C	C	C	A	A	B
Approach Vol, veh/h	216			528	1056	
Approach Delay, s/veh	33.0			7.0	15.7	
Approach LOS	C			A	B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		47.3		15.9		47.3
Change Period (Y+Rc), s		6.0		8.0		6.0
Max Green Setting (Gmax), s		50.0		8.0		50.0
Max Q Clear Time (g_c+I1), s		37.7		8.0		32.8
Green Ext Time (p_c), s		2.9		0.0		8.6

Intersection Summary				
HCM 6th Ctrl Delay			15.2	
HCM 6th LOS			B	

HCM 6th Signalized Intersection Summary
13: NYS 347 & Stony Brook Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	385	2089	94	121	2278	134	84	144	87	287	217	262
Future Volume (veh/h)	385	2089	94	121	2278	134	84	144	87	287	217	262
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1945	1870	1870	1870	1870	1870	1945	1870	1870	1870
Adj Flow Rate, veh/h	393	2132	96	123	2324	137	86	147	89	293	221	267
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	450	1929	873	146	2592	784	192	219	177	281	324	259
Arrive On Green	0.13	0.54	0.53	0.08	0.51	0.49	0.05	0.12	0.11	0.11	0.17	0.16
Sat Flow, veh/h	3456	3554	1648	1781	5106	1585	1781	1870	1648	1781	1870	1585
Grp Volume(v), veh/h	393	2132	96	123	2324	137	86	147	89	293	221	267
Grp Sat Flow(s),veh/h/ln	1728	1777	1648	1781	1702	1585	1781	1870	1648	1781	1870	1585
Q Serve(g_s), s	17.1	83.0	3.1	10.4	62.9	7.3	6.5	11.5	6.3	17.0	16.9	25.0
Cycle Q Clear(g_c), s	17.1	83.0	3.1	10.4	62.9	7.3	6.5	11.5	6.3	17.0	16.9	25.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	450	1929	873	146	2592	784	192	219	177	281	324	259
V/C Ratio(X)	0.87	1.11	0.11	0.84	0.90	0.17	0.45	0.67	0.50	1.04	0.68	1.03
Avail Cap(c_a), veh/h	565	1929	873	245	2638	798	258	287	237	281	324	259
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.3	35.0	8.9	69.2	34.0	21.4	56.7	64.7	42.6	57.2	59.3	64.0
Incr Delay (d2), s/veh	11.9	55.7	0.1	12.3	4.5	0.1	1.6	3.9	2.2	64.8	5.7	64.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	47.9	1.6	5.1	25.5	2.7	3.0	5.8	3.3	7.8	8.6	14.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.1	90.7	8.9	81.5	38.5	21.5	58.3	68.6	44.8	122.0	65.0	128.0
LnGrp LOS	E	F	A	F	D	C	E	E	D	F	E	F
Approach Vol, veh/h		2621			2584			322			781	
Approach Delay, s/veh		85.7			39.7			59.3			107.9	
Approach LOS		F			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	22.4	19.6	88.0	14.4	31.0	24.9	82.6
Change Period (Y+Rc), s	6.0	6.0	7.0	* 7	6.0	6.0	5.0	7.0
Max Green Setting (Gmax), s	17.0	22.0	21.0	* 81	14.0	25.0	25.0	77.0
Max Q Clear Time (g_c+I1), s	19.0	13.5	12.4	85.0	8.5	27.0	19.1	64.9
Green Ext Time (p_c), s	0.0	0.6	0.2	0.0	0.1	0.0	0.9	9.2

Intersection Summary	
HCM 6th Ctrl Delay	68.2
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
17: Stony Brook Road & Development Drive

Intersection						
Int Delay, s/veh	2.8					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	50	126	29	446	409	26
Future Vol, veh/h	50	126	29	446	409	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	260	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	55	138	32	490	449	29

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1018	464	478	0	-	0
Stage 1	464	-	-	-	-	-
Stage 2	554	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	263	598	1084	-	-	-
Stage 1	633	-	-	-	-	-
Stage 2	575	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	252	598	1084	-	-	-
Mov Cap-2 Maneuver	252	-	-	-	-	-
Stage 1	607	-	-	-	-	-
Stage 2	575	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.8	0.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1084	-	252	598	-	-
HCM Lane V/C Ratio	0.029	-	0.218	0.232	-	-
HCM Control Delay (s)	8.4	0	23.2	12.8	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.8	0.9	-	-

HCM 6th TWSC
21: Stony Brook Road & Stony Brook Rd WB Right

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Vol, veh/h	0	342	245	184	156	0
Future Vol, veh/h	0	342	245	184	156	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	360	258	194	164	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	715	-
Stage 1	-	-	-	-	355	-
Stage 2	-	-	-	-	360	-
Critical Hdwy	-	-	-	-	6.42	-
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	-
Pot Cap-1 Maneuver	0	-	-	-	397	0
Stage 1	0	-	-	-	710	0
Stage 2	0	-	-	-	706	0
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	397	-
Mov Cap-2 Maneuver	-	-	-	-	397	-
Stage 1	-	-	-	-	710	-
Stage 2	-	-	-	-	706	-

Approach	EB	WB	SE
HCM Control Delay, s	0	0	20.3
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SELn1
Capacity (veh/h)	-	-	-	397
HCM Lane V/C Ratio	-	-	-	0.414
HCM Control Delay (s)	-	-	-	20.3
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	2

HCM 6th TWSC
22: 25A & Stony Brook Rd WB Right

Intersection						
Int Delay, s/veh	4.2					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	184	952	0	156	812
Future Vol, veh/h	0	184	952	0	156	812
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	120	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	194	1002	0	164	855

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1002	0	-	1002	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	0	294	-	0	691	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	294	-	-	691	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	38.1	0	1.9
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	294	691	-
HCM Lane V/C Ratio	-	0.659	0.238	-
HCM Control Delay (s)	-	38.1	11.8	-
HCM Lane LOS	-	E	B	-
HCM 95th %tile Q(veh)	-	4.3	0.9	-

HCM 6th TWSC
1: Mills Pond Road & NYS Route 25A

Intersection	
Int Delay, s/veh	3.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	656	57	137	533	37	112
Future Vol, veh/h	656	57	137	533	37	112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	669	58	140	544	38	114

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	727	0	1522	698
Stage 1	-	-	-	-	698	-
Stage 2	-	-	-	-	824	-
Critical Hdwy	-	-	4.11	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	881	-	132	444
Stage 1	-	-	-	-	497	-
Stage 2	-	-	-	-	434	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	881	-	102	444
Mov Cap-2 Maneuver	-	-	-	-	102	-
Stage 1	-	-	-	-	384	-
Stage 2	-	-	-	-	434	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2	26.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	102	444	-	-	881	-
HCM Lane V/C Ratio	0.37	0.257	-	-	0.159	-
HCM Control Delay (s)	59.7	15.9	-	-	9.9	0
HCM Lane LOS	F	C	-	-	A	A
HCM 95th %tile Q(veh)	1.5	1	-	-	0.6	-

HCM 6th TWSC
2: 25A & Stony Brook Road

Intersection	
Int Delay, s/veh	5.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	135	0	560	202	0	529
Future Vol, veh/h	135	0	560	202	0	529
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Free	-	Free
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	144	0	596	215	0	563

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1159	-	0	-	-	-
Stage 1	596	-	-	-	-	-
Stage 2	563	-	-	-	-	-
Critical Hdwy	6.42	-	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	-	-
Pot Cap-1 Maneuver	216	0	-	0	0	-
Stage 1	550	0	-	0	0	-
Stage 2	570	0	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	216	-	-	-	-	-
Mov Cap-2 Maneuver	216	-	-	-	-	-
Stage 1	550	-	-	-	-	-
Stage 2	570	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	49.6	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	216	-
HCM Lane V/C Ratio	-	0.665	-
HCM Control Delay (s)	-	49.6	-
HCM Lane LOS	-	E	-
HCM 95th %tile Q(veh)	-	4.1	-

HCM 6th TWSC
3: Lake Avenue/Fire Dept & Route 25A

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	594	7	189	523	0	0	2	226	0	0	0
Future Vol, veh/h	0	594	7	189	523	0	0	2	226	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	250	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	632	7	201	556	0	0	2	240	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	556	0	0	639	0	0	-	1594	636	1715	1597	556
Stage 1	-	-	-	-	-	-	-	636	-	958	958	-
Stage 2	-	-	-	-	-	-	-	958	-	757	639	-
Critical Hdwy	4.12	-	-	4.12	-	-	-	5	5	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	-	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	-	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1015	-	-	945	-	0	0	210	593	71	106	531
Stage 1	-	-	-	-	-	0	0	472	-	309	336	-
Stage 2	-	-	-	-	-	0	0	336	-	400	470	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	1015	-	-	945	-	-	-	165	593	35	83	531
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	165	-	35	83	-
Stage 1	-	-	-	-	-	-	-	472	-	309	264	-
Stage 2	-	-	-	-	-	-	-	264	-	237	470	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	2.6	15.2	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	165	593	1015	-	-	945	-	-
HCM Lane V/C Ratio	0.013	0.405	-	-	-	0.213	-	-
HCM Control Delay (s)	27.1	15.1	0	-	-	9.8	-	0
HCM Lane LOS	D	C	A	-	-	A	-	A
HCM 95th %tile Q(veh)	0	2	0	-	-	0.8	-	-

HCM 6th Signalized Intersection Summary
4: Route 25A & Moriches Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	30	123	17	187	139	0	12	543	149	0	489	24
Future Volume (veh/h)	30	123	17	187	139	0	12	543	149	0	489	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	0	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	30	124	17	189	140	0	12	548	151	0	494	24
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	0	2	2	2	0	2	2
Cap, veh/h	492	476	65	489	554	0	104	804	690	0	771	37
Arrive On Green	0.30	0.30	0.27	0.30	0.30	0.00	0.44	0.44	0.44	0.00	0.44	0.44
Sat Flow, veh/h	1249	1610	221	1248	1870	0	12	1845	1585	0	1769	86
Grp Volume(v), veh/h	30	0	141	189	140	0	560	0	151	0	0	518
Grp Sat Flow(s),veh/h/ln	1249	0	1831	1248	1870	0	1857	0	1585	0	0	1855
Q Serve(g_s), s	0.7	0.0	2.2	5.1	2.1	0.0	0.0	0.0	2.2	0.0	0.0	8.1
Cycle Q Clear(g_c), s	2.8	0.0	2.2	7.3	2.1	0.0	9.0	0.0	2.2	0.0	0.0	8.1
Prop In Lane	1.00		0.12	1.00		0.00	0.02		1.00	0.00		0.05
Lane Grp Cap(c), veh/h	492	0	542	489	554	0	908	0	690	0	0	808
V/C Ratio(X)	0.06	0.00	0.26	0.39	0.25	0.00	0.62	0.00	0.22	0.00	0.00	0.64
Avail Cap(c_a), veh/h	826	0	1032	823	1054	0	2760	0	2298	0	0	2689
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	11.1	0.0	10.1	12.8	10.0	0.0	8.5	0.0	6.6	0.0	0.0	8.2
Incr Delay (d2), s/veh	0.0	0.0	0.2	0.4	0.2	0.0	1.0	0.0	0.2	0.0	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.6	1.1	0.6	0.0	2.1	0.0	0.4	0.0	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.1	0.0	10.2	13.2	10.2	0.0	9.4	0.0	6.8	0.0	0.0	9.4
LnGrp LOS	B	A	B	B	B	A	A	A	A	A	A	A
Approach Vol, veh/h		171			329			711			518	
Approach Delay, s/veh		10.4			11.9			8.9			9.4	
Approach LOS		B			B			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.2		15.0		22.2		15.0				
Change Period (Y+Rc), s		6.0		5.0		6.0		5.0				
Max Green Setting (Gmax), s		54.0		20.0		54.0		20.0				
Max Q Clear Time (g_c+I1), s		11.0		4.8		10.1		9.3				
Green Ext Time (p_c), s		5.2		0.4		3.6		0.8				
Intersection Summary												
HCM 6th Ctrl Delay			9.8									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary
5: Lake Avenue & Moriches Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	110	138	27	176	52	128	172	17	37	166	0
Future Volume (veh/h)	0	110	138	27	176	52	128	172	17	37	166	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1945	1945	1945	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	122	0	30	196	58	142	191	19	41	184	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	581		154	540	512	693	792	79	668	885	0
Arrive On Green	0.00	0.31	0.00	0.31	0.31	0.31	0.47	0.47	0.41	0.47	0.47	0.00
Sat Flow, veh/h	0	1870	1585	141	1738	1648	1200	1674	167	1172	1870	0
Grp Volume(v), veh/h	0	122	0	226	0	58	142	0	210	41	184	0
Grp Sat Flow(s),veh/h/ln	0	1870	1585	1879	0	1648	1200	0	1840	1172	1870	0
Q Serve(g_s), s	0.0	1.8	0.0	0.0	0.0	0.9	2.9	0.0	2.5	0.8	2.1	0.0
Cycle Q Clear(g_c), s	0.0	1.8	0.0	3.4	0.0	0.9	5.0	0.0	2.5	3.3	2.1	0.0
Prop In Lane	0.00		1.00	0.13		1.00	1.00		0.09	1.00		0.00
Lane Grp Cap(c), veh/h	0	581		694	0	512	693	0	870	668	885	0
V/C Ratio(X)	0.00	0.21		0.33	0.00	0.11	0.20	0.00	0.24	0.06	0.21	0.00
Avail Cap(c_a), veh/h	0	1466		1560	0	1292	1196	0	1641	1159	1668	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	9.4	0.0	9.9	0.0	9.1	7.2	0.0	5.9	6.8	5.7	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.3	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.5	0.0	1.0	0.0	0.2	0.5	0.0	0.6	0.1	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	9.6	0.0	10.2	0.0	9.2	7.3	0.0	6.0	6.8	5.8	0.0
LnGrp LOS	A	A		B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		122	A		284			352			225	
Approach Delay, s/veh		9.6			10.0			6.5			6.0	
Approach LOS		A			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	21.5	15.5	21.5	15.5
Change Period (Y+Rc), s	* 6.5	5.5	* 6.5	5.5
Max Green Setting (Gmax), s	* 31	27.5	* 31	27.5
Max Q Clear Time (g_c+I1), s	7.0	3.8	5.3	5.4
Green Ext Time (p_c), s	1.3	0.3	0.8	0.9

Intersection Summary	
HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	13.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	24	9	190	14	8	12	207	164	8	200	2
Future Vol, veh/h	2	24	9	190	14	8	12	207	164	8	200	2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	26	10	204	15	9	13	223	176	9	215	2
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	9.5	13.8	14.1	11.2
HCM LOS	A	B	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	3%	6%	93%	0%	4%
Vol Thru, %	54%	69%	7%	0%	95%
Vol Right, %	43%	26%	0%	100%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	383	35	204	8	210
LT Vol	12	2	190	0	8
Through Vol	207	24	14	0	200
RT Vol	164	9	0	8	2
Lane Flow Rate	412	38	219	9	226
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.563	0.063	0.408	0.013	0.34
Departure Headway (Hd)	4.923	6.069	6.693	5.509	5.413
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	733	588	537	649	664
Service Time	2.956	4.125	4.432	3.248	3.452
HCM Lane V/C Ratio	0.562	0.065	0.408	0.014	0.34
HCM Control Delay	14.1	9.5	14	8.3	11.2
HCM Lane LOS	B	A	B	A	B
HCM 95th-tile Q	3.5	0.2	2	0	1.5

HCM 6th Signalized Intersection Summary
7: Woodlawn Avenue/Gated & Moriches Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	0	416	0	0	0	320	398	0	0	430	39
Future Volume (veh/h)	38	0	416	0	0	0	320	398	0	0	430	39
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870				1870	1945	0	0	1870	1870
Adj Flow Rate, veh/h	39	0	424				327	406	0	0	439	40
Peak Hour Factor	0.98	0.98	0.98				0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	0	2				2	2	0	0	2	2
Cap, veh/h	255	0	508				566	1250	0	0	604	55
Arrive On Green	0.14	0.00	0.14				0.18	0.64	0.00	0.00	0.36	0.36
Sat Flow, veh/h	1781	0	1585				1781	1945	0	0	1689	154
Grp Volume(v), veh/h	39	0	424				327	406	0	0	0	479
Grp Sat Flow(s),veh/h/ln	1781	0	1585				1781	1945	0	0	0	1843
Q Serve(g_s), s	1.1	0.0	8.0				5.4	5.3	0.0	0.0	0.0	12.6
Cycle Q Clear(g_c), s	1.1	0.0	8.0				5.4	5.3	0.0	0.0	0.0	12.6
Prop In Lane	1.00		1.00				1.00		0.00	0.00		0.08
Lane Grp Cap(c), veh/h	255	0	508				566	1250	0	0	0	659
V/C Ratio(X)	0.15	0.00	0.83				0.58	0.32	0.00	0.00	0.00	0.73
Avail Cap(c_a), veh/h	255	0	508				568	2017	0	0	0	1384
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	21.0	0.0	17.6				9.3	4.5	0.0	0.0	0.0	15.6
Incr Delay (d2), s/veh	0.3	0.0	11.4				1.4	0.1	0.0	0.0	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	1.6				1.7	1.4	0.0	0.0	0.0	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.3	0.0	29.1				10.7	4.7	0.0	0.0	0.0	17.2
LnGrp LOS	C	A	C				B	A	A	A	A	B
Approach Vol, veh/h		463						733			479	
Approach Delay, s/veh		28.4						7.4			17.2	
Approach LOS		C						A			B	

Timer - Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		41.9		14.0	15.9	26.0		
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		
Max Green Setting (Gmax), s		58.0		8.0	10.0	42.0		
Max Q Clear Time (g_c+I1), s		7.3		10.0	7.4	14.6		
Green Ext Time (p_c), s		1.8		0.0	0.4	2.1		

Intersection Summary			
HCM 6th Ctrl Delay			16.0
HCM 6th LOS			B

HCM 6th Signalized Intersection Summary
8: Moriches Road & NYS 347

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	1329	172	357	1337	316	154	155	165	323	240	138
Future Volume (veh/h)	220	1329	172	357	1337	316	154	155	165	323	240	138
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	237	1429	185	384	1438	0	166	167	177	347	258	148
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	269	1977	582	461	1888		245	242	417	434	298	492
Arrive On Green	0.15	0.39	0.37	0.13	0.37	0.00	0.07	0.13	0.13	0.13	0.16	0.16
Sat Flow, veh/h	1781	5106	1585	3456	5106	1585	3456	1870	1585	3456	1870	1585
Grp Volume(v), veh/h	237	1429	185	384	1438	0	166	167	177	347	258	148
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1728	1702	1585	1728	1870	1585	1728	1870	1585
Q Serve(g_s), s	13.1	23.9	5.5	10.9	24.8	0.0	4.7	8.6	9.3	9.8	13.5	4.3
Cycle Q Clear(g_c), s	13.1	23.9	5.5	10.9	24.8	0.0	4.7	8.6	9.3	9.8	13.5	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	269	1977	582	461	1888		245	242	417	434	298	492
V/C Ratio(X)	0.88	0.72	0.32	0.83	0.76		0.68	0.69	0.42	0.80	0.86	0.30
Avail Cap(c_a), veh/h	284	3308	995	551	3324		620	345	504	620	345	531
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.7	26.2	9.9	42.4	27.7	0.0	45.5	41.7	30.7	42.6	41.1	10.9
Incr Delay (d2), s/veh	25.2	0.5	0.3	9.1	0.7	0.0	3.3	3.5	0.7	4.8	18.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	8.9	2.8	5.0	9.3	0.0	2.1	4.1	3.4	4.4	7.6	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.9	26.7	10.2	51.5	28.4	0.0	48.8	45.2	31.4	47.5	59.1	11.2
LnGrp LOS	E	C	B	D	C		D	D	C	D	E	B
Approach Vol, veh/h		1851			1822	A		510			753	
Approach Delay, s/veh		30.2			33.3			41.6			44.3	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.6	20.5	18.4	43.8	14.6	23.5	20.1	42.1
Change Period (Y+Rc), s	5.0	7.5	5.0	7.0	7.5	* 7.5	5.0	* 7
Max Green Setting (Gmax), s	18.0	18.5	16.0	63.0	18.0	* 19	16.0	* 63
Max Q Clear Time (g_c+I1), s	11.8	11.3	12.9	25.9	6.7	15.5	15.1	26.8
Green Ext Time (p_c), s	0.8	0.8	0.5	9.5	0.5	0.5	0.1	8.3

Intersection Summary	
HCM 6th Ctrl Delay	34.7
HCM 6th LOS	C

Notes
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
9: NYS 25A & Main Street

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	453	113	252	484	91	258
Future Volume (veh/h)	453	113	252	484	91	258
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1945	1870	1945	1870	1870
Adj Flow Rate, veh/h	467	0	260	499	94	266
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	563		507	968	335	811
Arrive On Green	0.32	0.00	0.27	0.27	0.05	0.43
Sat Flow, veh/h	1781	1648	1870	1648	1781	1870
Grp Volume(v), veh/h	467	0	260	499	94	266
Grp Sat Flow(s),veh/h/ln	1781	1648	1870	1648	1781	1870
Q Serve(g_s), s	13.6	0.0	6.6	10.0	2.0	5.2
Cycle Q Clear(g_c), s	13.6	0.0	6.6	10.0	2.0	5.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	563		507	968	335	811
V/C Ratio(X)	0.83		0.51	0.52	0.28	0.33
Avail Cap(c_a), veh/h	1244		870	1288	365	1205
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.7	0.0	17.2	6.8	12.8	10.4
Incr Delay (d2), s/veh	3.2	0.0	0.8	0.4	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	2.7	6.1	0.7	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.0	0.0	18.0	7.3	13.2	10.7
LnGrp LOS	C		B	A	B	B
Approach Vol, veh/h	467	A	759			360
Approach Delay, s/veh	21.0		11.0			11.3
Approach LOS	C		B			B

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	9.1	23.1				32.2		23.6
Change Period (Y+Rc), s	6.0	8.0				8.0		6.0
Max Green Setting (Gmax), s	4.0	26.0				36.0		39.0
Max Q Clear Time (g_c+I1), s	4.0	12.0				7.2		15.6
Green Ext Time (p_c), s	0.0	3.1				1.0		2.1

Intersection Summary	
HCM 6th Ctrl Delay	14.0
HCM 6th LOS	B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
10: Stony Brook Road & South Drive

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	171	53	254	184	65	317
Future Volume (veh/h)	171	53	254	184	65	317
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	180	56	267	194	68	334
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	683	607	744	631	155	601
Arrive On Green	0.38	0.38	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1781	1585	1870	1585	180	1509
Grp Volume(v), veh/h	180	56	267	194	402	0
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1689	0
Q Serve(g_s), s	3.5	1.1	5.0	4.2	1.9	0.0
Cycle Q Clear(g_c), s	3.5	1.1	5.0	4.2	8.6	0.0
Prop In Lane	1.00	1.00		1.00	0.17	
Lane Grp Cap(c), veh/h	683	607	744	631	756	0
V/C Ratio(X)	0.26	0.09	0.36	0.31	0.53	0.00
Avail Cap(c_a), veh/h	1134	1009	1303	1104	1233	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.6	9.9	10.6	10.4	11.6	0.0
Incr Delay (d2), s/veh	0.2	0.1	0.3	0.3	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.3	1.8	1.3	2.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.8	10.0	10.9	10.7	12.2	0.0
LnGrp LOS	B	A	B	B	B	A
Approach Vol, veh/h	236		461			402
Approach Delay, s/veh	10.6		10.8			12.2
Approach LOS	B		B			B

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	26.0	26.0	24.3
Change Period (Y+Rc), s	6.0	6.0	5.0
Max Green Setting (Gmax), s	35.0	35.0	32.0
Max Q Clear Time (g_c+I1), s	7.0	10.6	5.5
Green Ext Time (p_c), s	2.3	2.8	0.7

Intersection Summary	
HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
11: Oxhead Road & Stony Brook Road

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	71	115	330	87	128	366
Future Volume (veh/h)	71	115	330	87	128	366
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1976	1976	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	124	355	94	138	394
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	146	238	758	201	246	628
Arrive On Green	0.22	0.22	0.53	0.53	0.53	0.53
Sat Flow, veh/h	651	1062	1425	377	274	1181
Grp Volume(v), veh/h	201	0	0	449	532	0
Grp Sat Flow(s),veh/h/ln	1721	0	0	1802	1454	0
Q Serve(g_s), s	4.6	0.0	0.0	7.0	5.6	0.0
Cycle Q Clear(g_c), s	4.6	0.0	0.0	7.0	12.6	0.0
Prop In Lane	0.38	0.62		0.21	0.26	
Lane Grp Cap(c), veh/h	386	0	0	959	874	0
V/C Ratio(X)	0.52	0.00	0.00	0.47	0.61	0.00
Avail Cap(c_a), veh/h	763	0	0	1798	1567	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.4	0.0	0.0	6.6	7.6	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.4	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	0.0	1.9	2.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.5	0.0	0.0	6.9	8.3	0.0
LnGrp LOS	B	A	A	A	A	A
Approach Vol, veh/h	201		449			532
Approach Delay, s/veh	16.5		6.9			8.3
Approach LOS	B		A			A

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	30.0	30.0	15.1
Change Period (Y+Rc), s	6.0	6.0	5.0
Max Green Setting (Gmax), s	45.0	45.0	20.0
Max Q Clear Time (g_c+I1), s	9.0	14.6	6.6
Green Ext Time (p_c), s	1.5	4.3	0.5

Intersection Summary	
HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
12: Hallock Road & Stony Brook Road

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	127	32	27	327	373	103
Future Volume (veh/h)	127	32	27	327	373	103
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	130	33	28	334	381	105
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	338	301	452	918	693	191
Arrive On Green	0.19	0.19	0.49	0.49	0.49	0.49
Sat Flow, veh/h	1781	1585	910	1870	1411	389
Grp Volume(v), veh/h	130	33	28	334	0	486
Grp Sat Flow(s),veh/h/ln	1781	1585	910	1870	0	1800
Q Serve(g_s), s	2.6	0.7	0.9	4.5	0.0	7.7
Cycle Q Clear(g_c), s	2.6	0.7	8.6	4.5	0.0	7.7
Prop In Lane	1.00	1.00	1.00			0.22
Lane Grp Cap(c), veh/h	338	301	452	918	0	884
V/C Ratio(X)	0.38	0.11	0.06	0.36	0.00	0.55
Avail Cap(c_a), veh/h	394	350	1122	2296	0	2210
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.4	13.7	10.2	6.4	0.0	7.2
Incr Delay (d2), s/veh	0.7	0.2	0.1	0.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.2	0.2	1.2	0.0	2.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.1	13.8	10.3	6.7	0.0	7.8
LnGrp LOS	B	B	B	A	A	A
Approach Vol, veh/h	163			362	486	
Approach Delay, s/veh	14.9			6.9	7.8	
Approach LOS	B			A	A	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		26.0		14.7		26.0
Change Period (Y+Rc), s		6.0		8.0		6.0
Max Green Setting (Gmax), s		50.0		8.0		50.0
Max Q Clear Time (g_c+I1), s		10.6		4.6		9.7
Green Ext Time (p_c), s		2.4		0.1		3.6
Intersection Summary						
HCM 6th Ctrl Delay			8.6			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
13: NYS 347 & Stony Brook Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	406	1883	128	106	2377	130	319	113	249	107	120	71
Future Volume (veh/h)	406	1883	128	106	2377	130	319	113	249	107	120	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1945	1870	1870	1870	1870	1870	1945	1870	1870	1870
Adj Flow Rate, veh/h	419	1941	132	109	2451	134	329	116	257	110	124	73
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	482	1881	848	141	2471	743	304	301	247	245	174	129
Arrive On Green	0.14	0.53	0.51	0.08	0.48	0.47	0.13	0.16	0.15	0.06	0.09	0.08
Sat Flow, veh/h	3456	3554	1648	1781	5106	1585	1781	1870	1648	1781	1870	1585
Grp Volume(v), veh/h	419	1941	132	109	2451	134	329	116	257	110	124	73
Grp Sat Flow(s),veh/h/ln	1728	1777	1648	1781	1702	1585	1781	1870	1648	1781	1870	1585
Q Serve(g_s), s	15.7	70.0	3.0	7.9	63.0	6.5	17.0	7.3	15.7	7.5	8.5	5.9
Cycle Q Clear(g_c), s	15.7	70.0	3.0	7.9	63.0	6.5	17.0	7.3	15.7	7.5	8.5	5.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	482	1881	848	141	2471	743	304	301	247	245	174	129
V/C Ratio(X)	0.87	1.03	0.16	0.78	0.99	0.18	1.08	0.39	1.04	0.45	0.71	0.56
Avail Cap(c_a), veh/h	575	1881	848	216	2471	743	304	361	299	245	233	180
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.7	31.1	4.8	59.7	33.9	20.4	50.0	49.6	35.2	51.9	58.3	58.5
Incr Delay (d2), s/veh	11.9	29.4	0.1	9.1	16.2	0.1	75.5	0.8	61.8	1.3	6.5	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	34.7	1.9	3.8	27.5	2.3	8.2	3.5	10.3	3.4	4.4	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.6	60.5	4.9	68.8	50.0	20.5	125.5	50.4	97.1	53.2	64.8	62.3
LnGrp LOS	E	F	A	E	D	C	F	D	F	D	E	E
Approach Vol, veh/h		2492			2694			702			307	
Approach Delay, s/veh		58.8			49.3			102.7			60.0	
Approach LOS		E			D			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	25.8	17.4	75.0	23.0	16.8	23.4	69.0
Change Period (Y+Rc), s	6.0	6.0	7.0	* 7	6.0	6.0	5.0	7.0
Max Green Setting (Gmax), s	8.0	24.0	16.0	* 68	17.0	15.0	22.0	62.0
Max Q Clear Time (g_c+I1), s	9.5	17.7	9.9	72.0	19.0	10.5	17.7	65.0
Green Ext Time (p_c), s	0.0	0.9	0.1	0.0	0.0	0.3	0.7	0.0

Intersection Summary	
HCM 6th Ctrl Delay	59.7
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
21: Stony Brook Road & Stony Brook Rd WB Right

Intersection						
Int Delay, s/veh	3.4					

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Vol, veh/h	0	202	135	184	164	0
Future Vol, veh/h	0	202	135	184	164	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	215	144	196	174	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	457	-
Stage 1	-	-	-	-	242	-
Stage 2	-	-	-	-	215	-
Critical Hdwy	-	-	-	-	6.42	-
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	-
Pot Cap-1 Maneuver	0	-	-	-	562	0
Stage 1	0	-	-	-	798	0
Stage 2	0	-	-	-	821	0
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	562	-
Mov Cap-2 Maneuver	-	-	-	-	562	-
Stage 1	-	-	-	-	798	-
Stage 2	-	-	-	-	821	-

Approach	EB	WB	SE
HCM Control Delay, s	0	0	14.3
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SELn1
Capacity (veh/h)	-	-	-	562
HCM Lane V/C Ratio	-	-	-	0.31
HCM Control Delay (s)	-	-	-	14.3
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	1.3

HCM 6th TWSC
22: 25A & Stony Brook Rd WB Right

Intersection						
Int Delay, s/veh	3.2					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	184	560	0	164	529
Future Vol, veh/h	0	184	560	0	164	529
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	120	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	196	596	0	174	563

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	596	0	-	596	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	0	504	-	0	980	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	504	-	-	980	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.6	0	2.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	504	980	-
HCM Lane V/C Ratio	-	0.388	0.178	-
HCM Control Delay (s)	-	16.6	9.5	-
HCM Lane LOS	-	C	A	-
HCM 95th %tile Q(veh)	-	1.8	0.6	-

APPENDIX D:

TRAFFIC SIGNAL WARRANT STUDY
NYS ROUTE 25A AT STONY BROOK ROAD

Signal Warrant Study: Route 25A at Stony Brook Road

Cameron Engineering conducted a traffic signal warrant study to determine if projected conditions justify signalizing this intersection. Of the nine warrants, only two could potentially apply to this intersection:

- Warrant 2 (Four-Hour Vehicular Volume)
- Warrant 6 (Coordinated Signal System)

The remaining warrants are known to not apply for the listed reasons:

- Warrant 1 (Eight Hour Vehicular Volume)
    - *The traffic counts at this intersection were counted for four hours, and during those four hours, the westbound left turn volume on Stony Brook Road was not high enough to satisfy both conditions of the warrant.*
- Warrant 3 (Peak Hour Volume/Delay)
    - *There is no proposed subdivision component that creates undue travel delay on a daily basis, or that constitutes an "unusual case," which the MUTCD requires to justify the use of this warrant.*
- Warrant 4 (Pedestrian Volume)
    - *Not enough pedestrians cross Stony Brook Road or Route 25A on a regular basis*
    - *There is no pedestrian-oriented land use in the immediate vicinity*
- Warrant 5 (School Crossing)
    - *The intersection is not an established school crossing*
- Warrant 7 (Crash Experience)
    - *This warrant requires a history of specific collision types (opposing left turns, right-angle, and pedestrian) and sufficient use of non-signal measures with proof that these measures have failed to alleviate these specific collision types*
- Warrant 8 (Roadway Network)
    - *This warrant only applies to "major routes," not Stony Brook Road*
        - → *Not part of the principal roadway network for through-traffic flow*
        - → *Not rural or suburban highways outside of, entering, or traversing a city*
        - → *Do not appear as major routes on an official plan*
- Warrant 9 (Intersection Near a Grade Crossing)
    - *This intersection is not near a railroad grade crossing*

For the assessment, Route 25A is the "major road," and the "side road" is Stony Brook Road, both of which have one approach lane. Stony Brook Road right turns are separate and stop-controlled, so for this analysis, only the left turn volumes apply.

As shown below, Warrant 2 and Warrant 6 are satisfied, so there is justification for installing a traffic signal at this intersection. As with the signal at Mills Pond Road, this signal would be under NYSDOT jurisdiction, so the State has final say on approving a new signal, and the State would determine the signal timing and phasing, along with any associated changes to the intersection's lane assignments. Pending direction from NYSDOT, the Mitigated Build analysis in this report considers 90- to 150-second cycle lengths, with left turns occurring at the signal, and with a yield control on the northbound right turn channelized lane.

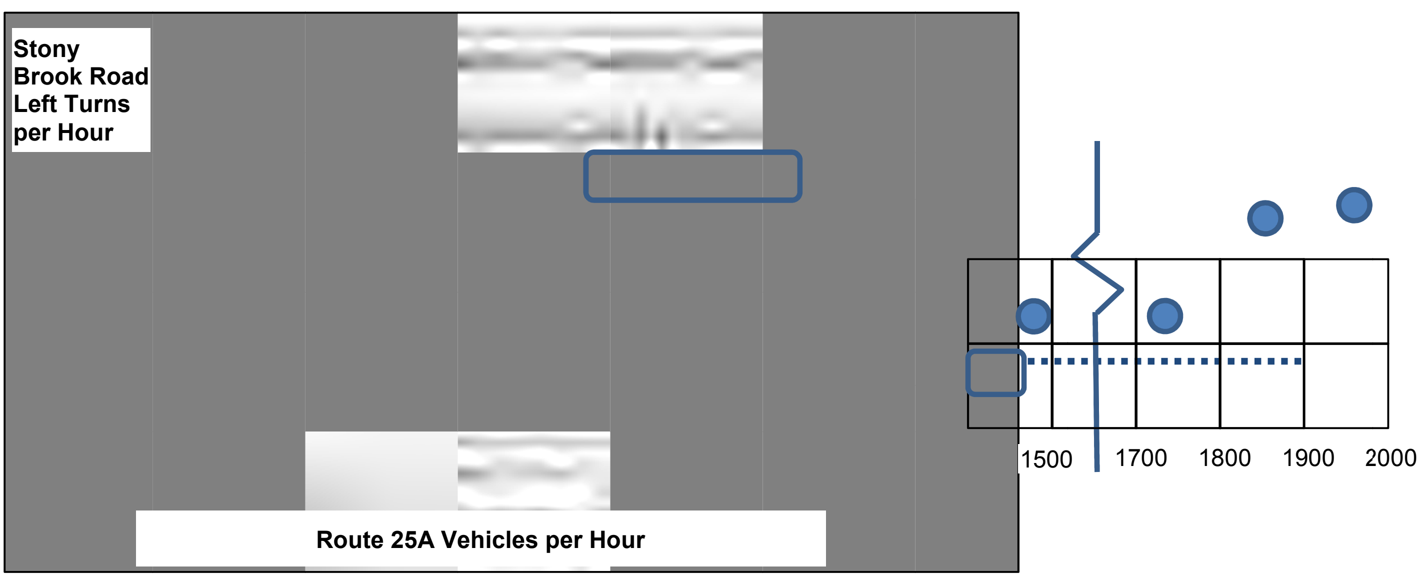
Table A: February 2017 Existing Approach Volumes

Bold numbers meet Condition A. *Italicized* numbers meet Condition B. ***Bold italicized*** numbers meet both conditions.

	VEHICLES PER HOUR	
	NYS Route 25A (Both approaches)	Northbound Stony Brook Road (Left Turns)
Warrant 1 Condition A	**500**	**150**
Warrant 1 Condition B	*750*	*75*
Weekday 7-8 am	***1,460***	*142*
Weekday 8-9 am	***1,722***	*120*
Weekday 4-5 pm	***1,845***	***232***
Weekday 5-6 pm	***1,955***	***237***

Warrant 2 – Four Hour Volume

This warrant applies where, for four hours of an average day, the plotted points of the intersection volumes (see the next page) fall above the applicable curve. This warrant is met, because the volumes were consistently high enough during the four hours when traffic counts were collected. The plotted points match Table A:



Warrant 6 (Coordinated Signal System)

Warrant 6 is satisfied when the resulting signal separation would be at least 1,000 feet, and when the adjacent traffic control signals do not provide the necessary "platooning" of main-road traffic. Using the same formula described in Section 4, this warrant requires the resulting signal separation to be 3,000 to 5,000 feet:

→ *Required separation = 0.5 x signal cycle (in seconds) x speed (in feet per second)*

The anticipated signal cycle lengths would be 90-150 seconds:

→ *90-second cycle: 0.5 x 90 x (40 mph x 1.67 = 66.8 feet/second) = 3,006 feet*

→ *150-second cycle: 0.5 x 150 x 66.8 feet/second = 5,010 feet*

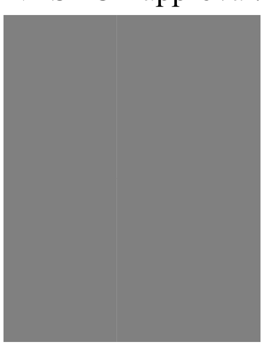
With a signal at this intersection, it would be ±2,000 feet to the existing signal at Main Street to the north, and ±4,200 feet to the proposed signal at Mills Pond Road to the southwest. These numbers are close and within the range of the requirements of the formula.

Additionally, based on the high PM peak hour left turn delay in the Build scenario without a traffic signal, the existing signal at Main Street and the proposed signal at Mills Pond Road would not provide the necessary platooning to create gaps in traffic for westbound left turns from Stony Brook Road. Therefore, both conditions of the warrant are met, and Warrant 6 is satisfied.

Conclusion

Since two traffic signal warrants are met, a signal is warranted at the intersection of Route 25A and Stony Brook Road.

In the interest of traffic safety, our office would recommend a "Signal Ahead" sign with flashing beacons, posted in both directions of Route 25A approaching the new signal, subject to NYSDOT approval.



APPENDIX E:

LIRR GRADE CROSSING ANALYSIS

- Projected Vehicular and Pedestrian-Bicyclist Crossing Volumes
- Existing Conditions Assessment
- Recommended Improvements

Gyrodyne has been actively coordinating the proposed re-opening of the railroad crossing between the Gyrodyne site and the Stony Brook R&D Park. While significant progress has been made in this effort, including support from Stony Brook University, there is still a degree of uncertainty as to when this might be accomplished. Timing associated with LIRR and NYSDOT involvement and with one or more public hearings required to secure an approval results in an uncertain timeframe. Accordingly, Gyrodyne has modified the proposed Preliminary Subdivision Map to clarify the railroad crossing as a "possible/future re-opening of railroad crossing". The updated Preliminary Subdivision Map would not result in the re-opening the railroad crossing.

The following report is intended as a starting guideline for a later date after the re-opening application process has progressed.

CAMERON ENGINEERING & ASSOCIATES, LLP

177 Crossways Park Drive
Woodbury, NY 11797
Tel: 516-827-4900
Fax: 516-827-4920

45 West 36th Street
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Tel: 212-324-4000
Fax: 646-216-2001

303 Old Tarrytown Road
1st Floor
White Plains, NY 10603
Tel: 914-721-8300
Fax: 914-997-0957

Sent From: ☒ *Sent From:* ☐ *Sent From:* ☐

MEMORANDUM

Date: May 21, 2018

Re: Gyrodyne/Stony Brook R&D Park LIRR Crossing No. 338338X at Milepost 51.23

This memorandum is part of a feasibility assessment for re-opening an existing fenced railroad crossing to traffic. The crossing would connect Gyrodyne and the Stony Brook Research and Development Park in St. James/Stony Brook (*see map below*).

Figure 1: Overall Location Map

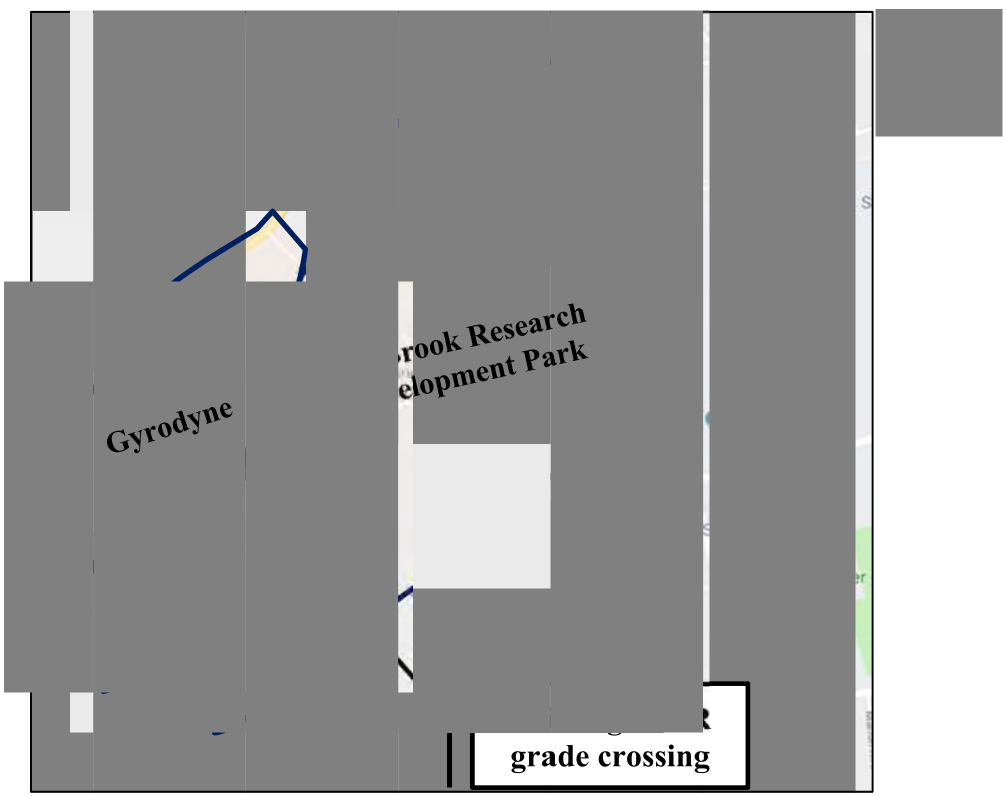
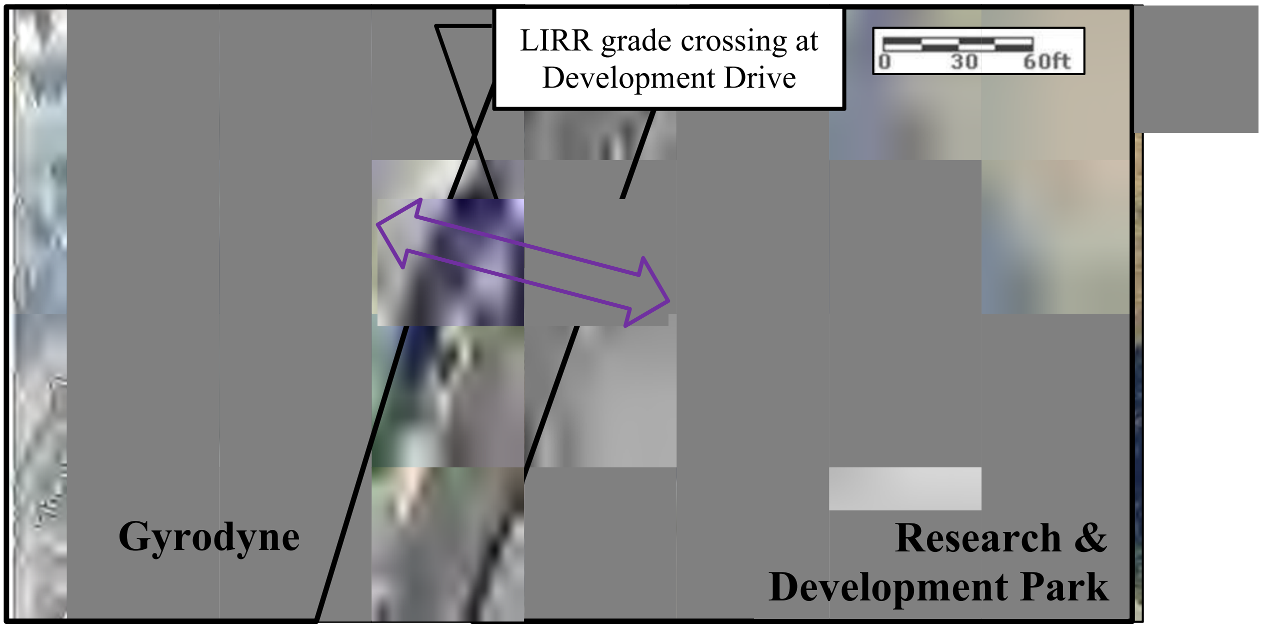


Figure 2: Enlarged Aerial of the Existing Crossing



The crossing was fenced on both sides to prevent cross traffic between Gyrodyne and the Research and Development Park after New York State acquired the parcel south of the railroad tracks. The crossing was open when Gyrodyne owned both sides of the crossing.

Gyrodyne LLC has a subdivision application to the Town of Smithtown that includes new land uses on its vacant property. New land uses could include a hotel; assisted living; and R&D/standard/medical offices. To reduce the subdivision's potential off-site traffic impacts and strengthen synergies with the University, the application contemplates re-opening the grade crossing to connect Gyrodyne and University buildings without using Route 25A and the northernmost segment of Stony Brook Road.

Figure 3: Illustrated Travel Routes with/without LIRR Crossing

Gyrodyne's understanding is that the University supports this concept, as it would be mutually beneficial for existing and potential future occupants of the Research and Development Park and business incubator space. Some existing tenants at the Gyrodyne site are associated with the University. It is projected that there would be even more University-related tenants if the proposed Gyrodyne subdivision is implemented.

Figure 4: Crossing Detour

If the crossing was open, it would be a short ±100-foot path between the two properties. With the crossing fenced off in both directions, the detour requires travel on Route 25A and Stony Brook Road and is over two miles long and takes at least five minutes in each direction (*see figure at right*), even in light traffic conditions. For those tenants who might need to make this trip multiple times per day, the detour time adds up and presents a significant time burden.

Re-opening the crossing could have short-term and long-term benefits:

- In the short term, if the crossing was re-opened immediately, it would expedite cross traffic for some of Gyrodyne's existing tenants who are associated with the University (the main campus, the Research and Development Park, and/or the Medical Center)
- In the long term, with the proposed subdivision built and occupied, the crossing would facilitate additional cross traffic associated with new subdivision buildings and new buildings being proposed at the Research and Development Park

This memorandum describes the projected traffic that might materialize in the short- and long-term, and describes short- and long-term infrastructure improvements that may be necessary, considering the existing conditions at the crossing and reported preliminary feedback from LIRR engineers.

The recommendations in this memorandum are on an order-of-magnitude level, subject to review and approval by multiple agencies. New York State Railroad Law requires any modification to a grade crossing to have an administrative hearing where interested parties can make statements to an Administrative Law Judge, who then makes a recommendation to the NYSDOT Commissioner. A hearing is the first step in a multi-part review process that will eventually include the MTA-LIRR, the NYSDOT RDSS (Rail Design and Support Section), and the NYSDOT FEDD (Freight and Economic Development Division), including the NYSDOT Region 10 Rail Coordinator.

<u>Organization of this Memorandum</u>

1) Describe the existing, short-term potential for cross traffic, immediately upon opening the crossing, presuming the subdivision is not yet built and occupied, and discuss additional short-term improvements the crossing might need to accommodate this traffic
2) Describe the longer-term potential for cross traffic with the Gyrodyne subdivision built and occupied, considering some future subdivision tenants would be associated with the University, and discuss additional long-term improvements the crossing might need to accommodate this additional traffic
3) Describe the existing physical conditions at and near the crossing
4) Describe the preliminary recommendations of the LIRR engineer, and supplemental recommendations for the crossing

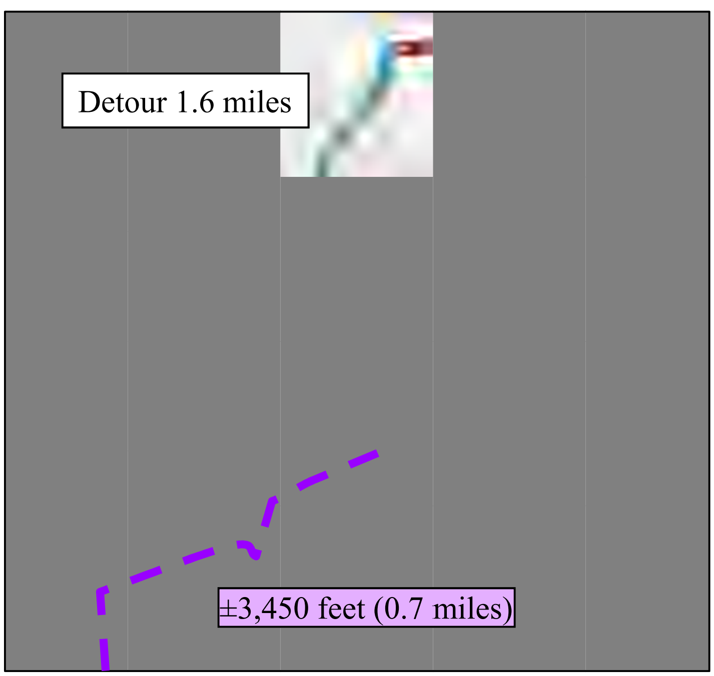
Potential Short-Term Traffic Using the Crossing

If the crossing was re-opened before the Gyrodyne subdivision is built and occupied, the projected daily traffic utilizing the crossing would be comprised of the following:

a. Existing Gyrodyne tenants associated with Stony Brook University (including the R&D Park and/or the Medical Center) who might need to travel between the two properties
   - As of May 2018, there are currently 230 to 245 personnel associated with Stony Brook IT, Pediatrics, and Compliance. By the end of 2018, there would be another 3-7 Pediatrics personnel based at the Gyrodyne site. SUNY IT staff sometimes visit Stony Brook Medical. It is reasonable to project that 25% of people based here may need to travel between the two properties on a regular basis, with 1-2 round trips per day. This results in 126 daily round trips (252 daily one-ways) over the crossing, associated with Stony Brook-related personnel.
   - Two business incubators in the R&D Park are renting space at Gyrodyne, and they report it would be helpful for them to be able to cross over directly. Two other prospective R&D tenants have 20 employees, so this memorandum considers 40 total R&D employees who may utilize the crossing during the day. If these 40 people each make one round trip, this correlates to 80 daily trips over the crossing.
   - Stony Brook University runs a shuttle bus between the Student Activity Center (SAC) and the Research and Development (R&D) Park: the Center of Excellence in Wireless & Information Technology (CEWIT), Advanced Energy Center (AERTC), and Research and Support Services (RSS). The latest available (Spring 2018 semester) schedule shows buses running every 15 minutes from 8:00 a.m. to 5:00 p.m. for the RSS, and until 9:30 p.m. for the remainder of the route. All together, there are 54 one-way shuttle bus trips per day.
   - *Short-Term Daily Traffic: Approximately 386 vehicles per day, including 54 buses*

b. Existing drivers who access the R&D Park from the west, who would utilize Mills Pond Road to get to the R&D Park via the crossing instead of Route 25A and Stony Brook Road

Figure 5: Cut Through vs. Off-site Road Route



- Cameron Engineering obtained peak hour traffic counts at Stony Brook Road-Development Drive from 7:00-9:00 a.m. and 4:00-6:00 p.m. The four-hour total of drivers entering/exiting from the north/Stony Brook Road was 131 vehicles: 67 entering via southbound Stony Brook Road and 64 exiting via the eastbound left turn onto northbound Stony Brook Road. If half of these drivers travel here from the northwest, it would be shorter to utilize the crossing to head northwest, rather than using Stony Brook Road to drive to westbound Route 25A. This corresponds to 66 trips over the busiest four hours of the day (an average of 16-17 per hour). A reasonable projection of daily trips would be 1.5x the four-hour peak volume: 99 daily trips.
- *Short-Term Daily Traffic: Approximately 99 vehicles per day*

c. A small number of people who might utilize the crossing as part of a "cut through"

- "Cut through" traffic refers to people who are headed to/from well beyond the area on 25A or Mills Pond Road, which may occur periodically, but it is not a realistic choice for a significant number of drivers on a regular basis. For the cut through option to make sense, the cut through would need to be noticeably shorter and faster.

  Based on the site location, it is possible that some drivers may look to cut through and utilize the crossing, but unless a driver is headed for the R&D Park, the similar east-west distance to get between Mills Pond Road and Stony Brook Road means few drivers would be encouraged to utilize the crossing instead of remaining on Route 25A.

  This memorandum considers a nominal 1% of traffic on Route 25A that could divert to the crossing; the AADT on Route 25A is approximately 17,300 vehicles per day, yielding a calculated 173 vehicles per day using the crossing.
- *Short-Term Daily Traffic: Approximately 173 vehicles per day*
- ***Total Short-Term Daily Traffic: Approximately 658 vehicles per day (54 buses)***

In context, the four closest active grade crossings have daily volumes ranging from 2,018 to 3,580, according to the FRA Web Accident Prediction System (WBAPS):

- Mills Pond Road crossing – AADT 3,580 vehicles per day
- Moriches Road crossing – AADT 3,337 vehicles per day
- Lake Avenue crossing – AADT 2,048 vehicles per day
- Northern Boulevard crossing – AADT 2,018 vehicles per day

It is logical that the proposed re-opened crossing would have noticeably less traffic than well-established roadway crossings.

<u>Pedestrian/Bicycle Volume</u>
The ITE does not have a methodology for projecting hourly or daily pedestrian-bicyclist volumes. Cameron Engineering has done a number of traffic counts throughout the St. James/Stony Brook area over the years. In fair weather conditions, individual locations could have 5-10 groups of pedestrians in a single one-hour period. Additionally, Route 25A is a signed bicycle route (with "Share the Road" signs posted at regular intervals).

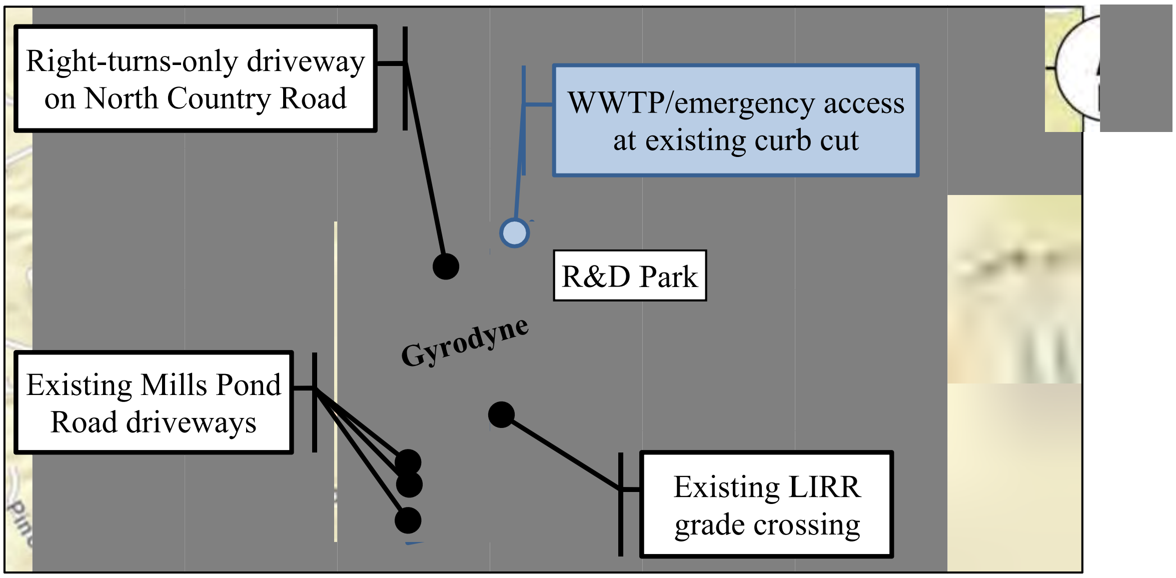
For the purposes of determining grade-crossing improvements to accommodate pedestrians and bicyclists, a reasonable projection considers fair weather conditions with 10% of the projected vehicular AADT being pedestrians or bicyclists.

- ***Total Short-Term Daily Pedestrians/Bicyclists: Approximately 66 per day***

Potential Long-Term Traffic Using the Crossing (with the Gyrodyne Subdivision)

The proposed mix of land uses in the Gyrodyne subdivision will have synergies with the University, the R&D Park, and the Medical Center, depending which type(s) of office tenants occupy the office space. The intent is that some of the existing tenants and future subdivision occupants at Gyrodyne and in the Research and Development Park will drive through the re-opened crossing instead of using the external road network (Route 25A and more of Stony Brook Road).

Figure 6: Schematic representation of Gyrodyne Subdivision Site Access



A reasonable projection of drivers who might utilize the crossing on a regular basis would comprise:

- 15% of subdivision office trips
- 15% of the existing counted trips at the Stony Brook Research and Development Park
- 15% of the ITE-based trips associated with Stony Brook University tenants at the existing Gyrodyne buildings (±16,000 s.f. of space)
- 5% nominal percentage of other subdivision uses (assisted living and hotel) whose synergies are more in line with uses such as the catering hall and on-site medical office space

The Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition) provides daily two-way traffic projections based on the type and size of various types of offices. The proposed subdivision could have medical office, general office, or R&D office space, or a mix of all three. Since medical office generates the most traffic per square foot, this memorandum considers medical office space in the new subdivision.

Table 1: Long-Term Trip Generation Projections

Land Use	ITE Daily Traffic	Component using the crossing
Subdivision Office	1,134 trips (total two-way)	15%: 170 trips (total two-way)
Subdivision R&D Office	1,464 trips (total two-way)	15%: 220 trips (total two-way)
Subdivision Medical Office	3,506 trips (total two-way)	15%: 526 trips (total two-way)
Actual office trips would range between 170 and 526 per day, pending specific tenants		
Subdivision Hotel	1,267 trips (total two-way)	5%: 63 trips (total two-way)
Subdivision Assisted Living	572 trips (total two-way)	5%: 29 trips (total two-way)
Hotel and assisted living trips would add 92 trips per day		

As shown above, the total projected short-term daily traffic is approximately 658 vehicles per day. Adding the range of long-term subdivision traffic yields the following:

Total Long-Term Daily Traffic:

- ***Lower range: Approximately 920 vehicles per day (658 + 170 + 92)***
- ***Upper range: Approximately 1,276 vehicles per day (658 + 526 + 92)***

With the subdivision in place, the Gyrodyne/north side of the crossing will have new walking trails and roads designed to accommodate bicycling on both sides of the street. The expectation is that additional pedestrians and bicyclists might utilize the crossing to access the campus-style subdivision and/or the University bicycle path system, which would increase the relative percentage of pedestrian-bicyclist volume compared to daily vehicle traffic. With a 25% ratio, the long-term daily volume might be:

- ***Total Long-Term Daily Pedestrian-Bicyclist volume: Approximately 319 per day (25% of 1,276)***

Historical Volume when Gyrodyne owned both sides of the crossing

The peak historical traffic volume over the crossing occurred more than twenty years ago, when Gyrodyne owned all ±343 acres north and south of the LIRR, and occupied the site as a helicopter manufacturer. It is possible that daily volume used to exceed the ±1,276 trips per day projected long-term with the subdivision in place.

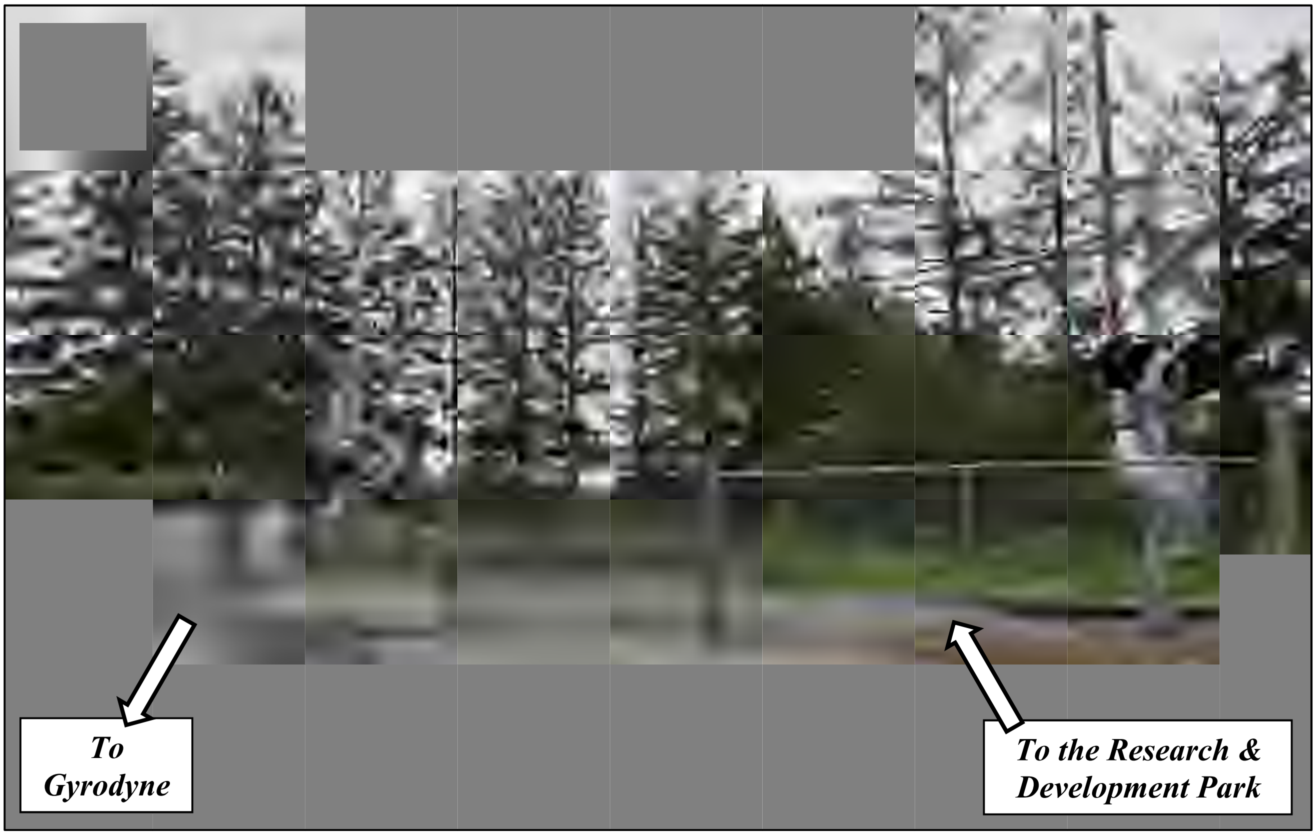
Cameron Engineering has in-house historical traffic counts associated with the buildings Gyrodyne used to own, south of the LIRR tracks (the area that is now the R&D Park):

- During the weekday A.M. peak hour, the buildings south of the LIRR generated 76 entering and 23 exiting vehicles (total of 99)
- During the weekday P.M. peak hour, the buildings south of the LIRR generated 24 entering and 87 exiting vehicles (total of 111)
- From these numbers, the peak 2-hour volume was 210 vehicles over two hours
- It is possible that daily volume associated with the south-site buildings was up to 1,050 vehicles per day (five times the peak two hours' traffic)
- If the north side of the crossing generated traffic in the 1:2 ratio of acreages north/south of the railroad, the entire site would have had 1,575 vehicles per day
- Using a 25% factor to account for internal traffic over the crossing, an estimated historical daily volume would be roughly 394 vehicles per day, slightly more than the short-term projections calculated above

Existing Railroad Crossing Conditions

This crossing is situated between the St. James and Stony Brook stations on the Port Jefferson branch. Train schedules are regularly updated; as of May 2018, these two stations have 40 trains per day, with headways ranging from 30 minutes to several hours. Cameron Engineering conducted a field visit in May 2018 to observe the existing conditions.

Photograph Set 1: Southbound View from the Gyrodyne side of the Crossing



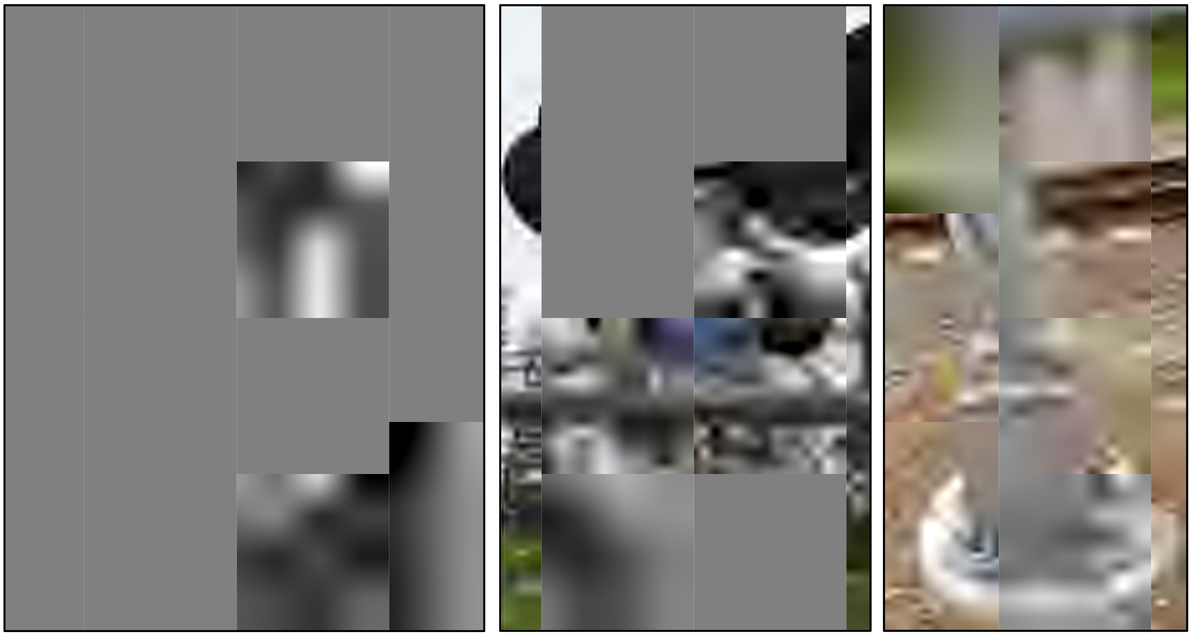
Photograph Set 2: Northbound View from the R&D Park side of the Crossing

Control Equipment (Crossbucks, gate arms, flashing beacons, control equipment): Crossing control can either be active (automatic gates and flashing beacons) or passive (signs and pavement markings that do not warn drivers about oncoming trains). The crossing is configured for active control.

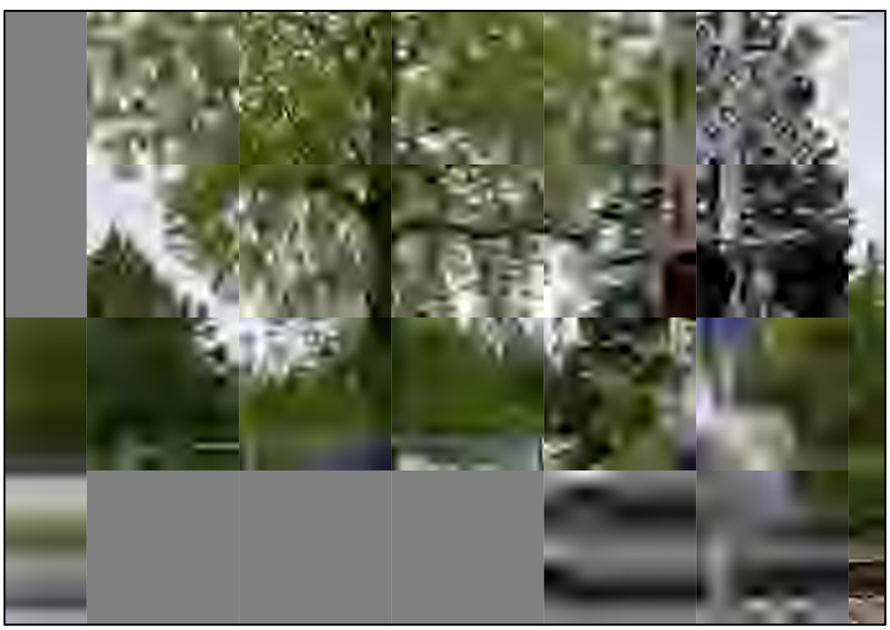
The signs, gates, beacons, and visible infrastructure on both sides appear to be well-maintained and fairly new. Pending LIRR confirmation of the electrical service, the gates, signs, and flashing beacons should not have to be replaced to re-open the crossing.

From outside the fences, the gates appear to satisfy the NYS MUTCD Supplement in that they have retro-reflective red-and white-striped gate arms, mounted on the same supports as railroad flashing-light beacons, and face perpendicular to the path over the crossing.

Photograph Set 3: Equipment on the Gyrodyne (north) side



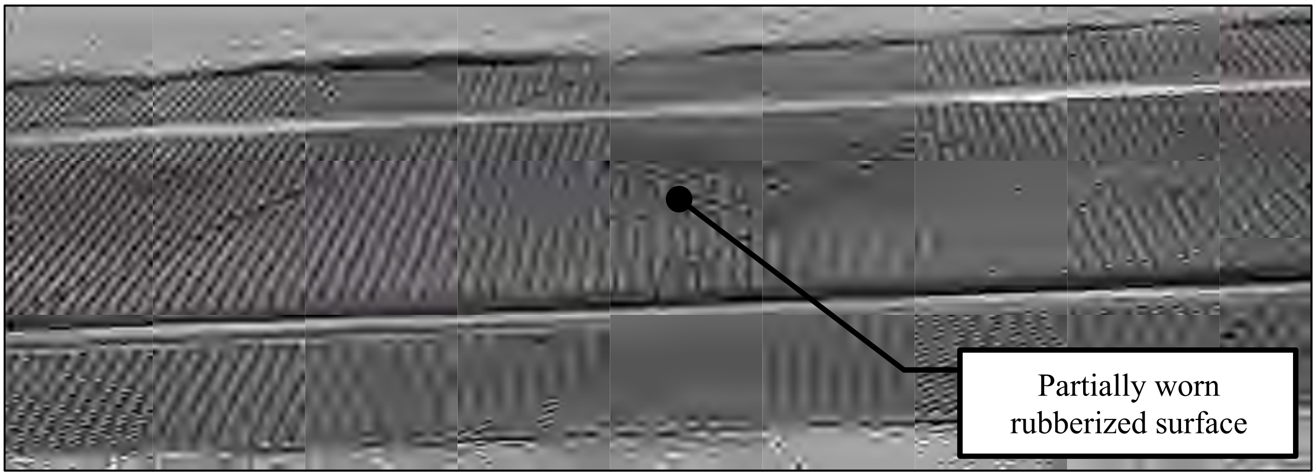
Photograph Set 4: Equipment on the Research and Development Park (south) side



Crossing surface condition: The crossing surface appears to be a "high type" that accommodates more traffic/activity than a "low type" of crossing as categorized in the NYSDOT Highway Design Manual (HDM). "Low type" crossings provide asphalt over the entire crossing. As shown in the next photograph, the Gyrodyne-Stony Brook crossing surface appears to be a rubber panel "elastomeric" surface, described in the HDM as "full depth rubber or steel reinforced molded rubber panels…inside or gage panels extend rail-to-rail with flangeway openings provided. Each outside or field panel is designed to extend to the ends of crossties." The other two "high type" configurations are described in the HDM as warranted with "high volumes of vehicles making turning movements…heavy commercial traffic…highway volume is high." As shown above, this crossing will not have high vehicle traffic volumes.

The crossing surface was not accessible behind the locked fences. From the available vantage points outside the fences, the rubber surface does not appear to have major cracking, though there do seem to be areas with the rubber worn away, and the transition sections appeared weathered as well.

Photograph Set 5: Views of the Crossing Surface

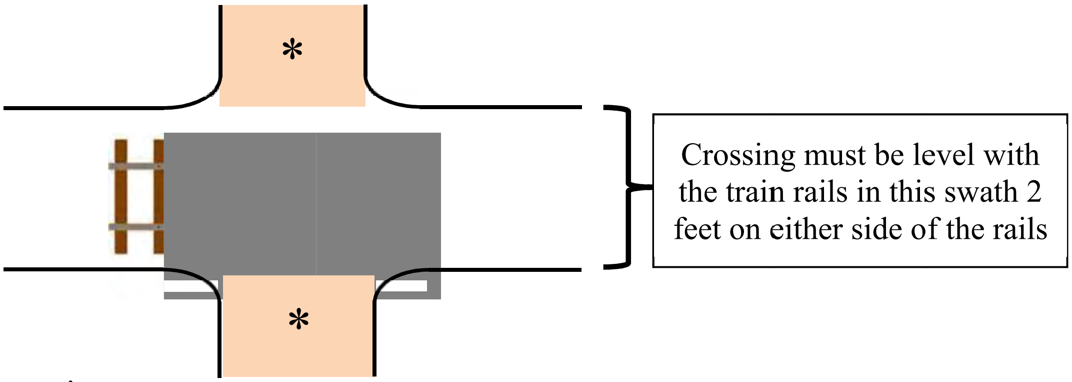


Asphalt pavement on either side of the crossing: The asphalt pavement on both sides of the crossing would need to be repaved to provide a smooth driving/walking surface and to address the lower grade on the north (Gyrodyne) side of the crossing.

Currently, the pavement on either side is in fair to poor condition, with uneven top courses of asphalt on both sides (shown in Photograph sets 1 and 2, above). Pavement restoration would be needed.

Per the NYSDOT Highway Design Manual (HDM), with respect to slopes and grade changes, the crossing roadway surface has to be at the same spot elevation as the top of the train rails for at least 2 feet outside the rails. Additionally, the crossing roadway surface should not be more than 3 inches higher or lower than the top of the nearest rail at a point 30 feet from the rail. This can be schematically illustrated as follows:

Figure 7: Schematic Illustration of Grade Changes at a Crossing (not to scale)



* *Crossing can't be more than 3" above/below the rails in these swaths 2-30 feet on either side*

The surface elevation of the rails needs to be identified to determine the allowable elevation on either side of the crossing.

At this preliminary phase (before Gyrodyne has access to the crossing), the Research and Development Park side may not require grade changes, but the Gyrodyne (north) side likely will.

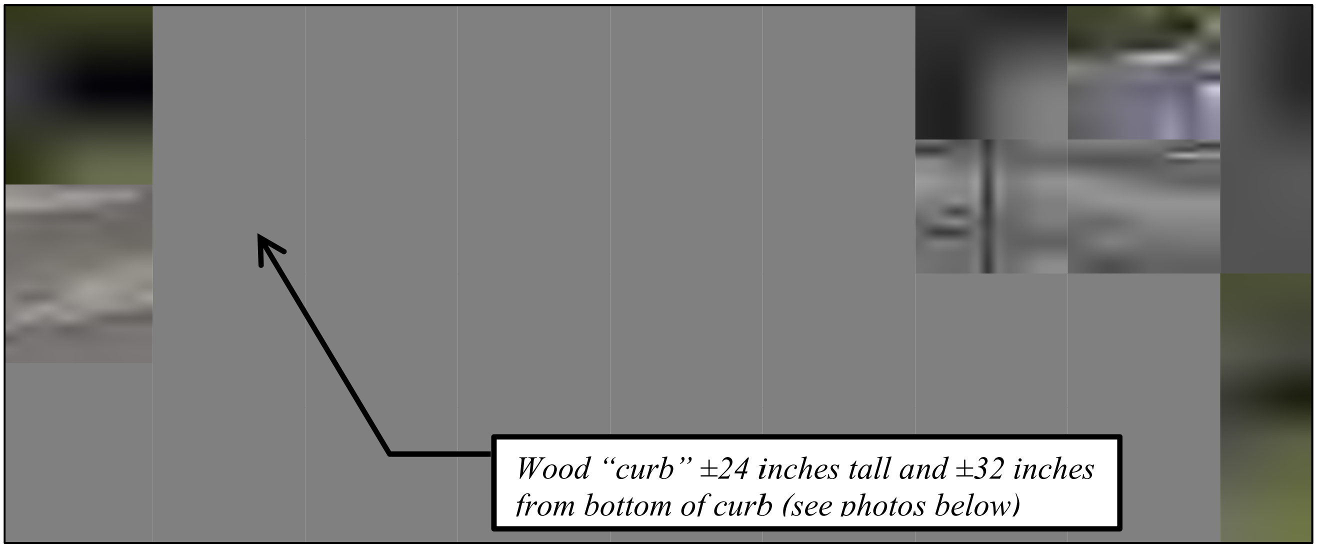
The first photograph below is a side view of the south (R&D Park) side of the crossing. From the available vantage point, the slope appears to be relatively flat.

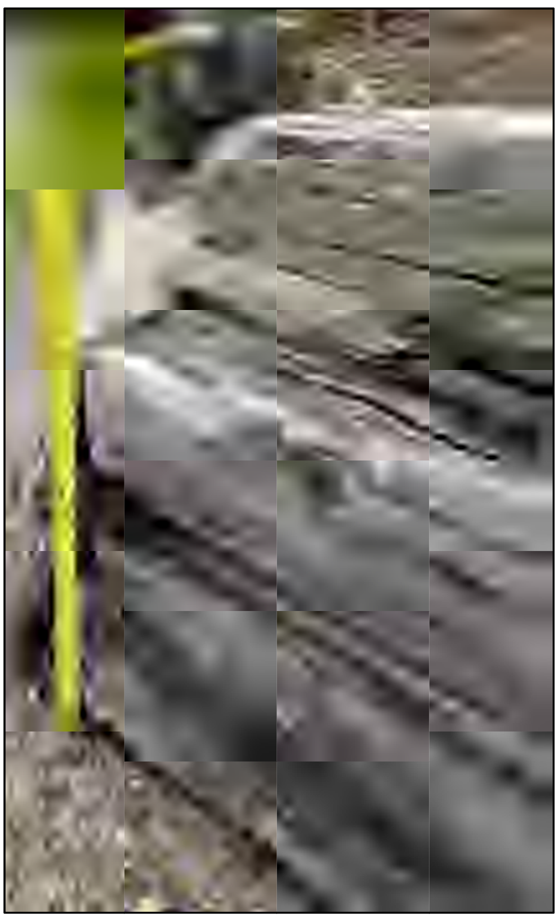
Photograph Set 6: Looking West at the R&D Park (south) side of the Crossing

The photographs that follow depict the north (Gyrodyne) side of the crossing, with a noticeable grade change from the approach road up to the level of the tracks. The second Gyrodyne-side-view photo depicts the ±3-foot height of the railroad-tie wall to give an idea of the elevation change being shown.

Without access to the actual track, it is not yet known where the 30-foot offset is from the track, where the elevation has to be within 3 inches of the height of the top of the rail. Notwithstanding this, grading is likely required to satisfy ADA and reduce the eventual forward walking slope for pedestrians utilizing the crossing.

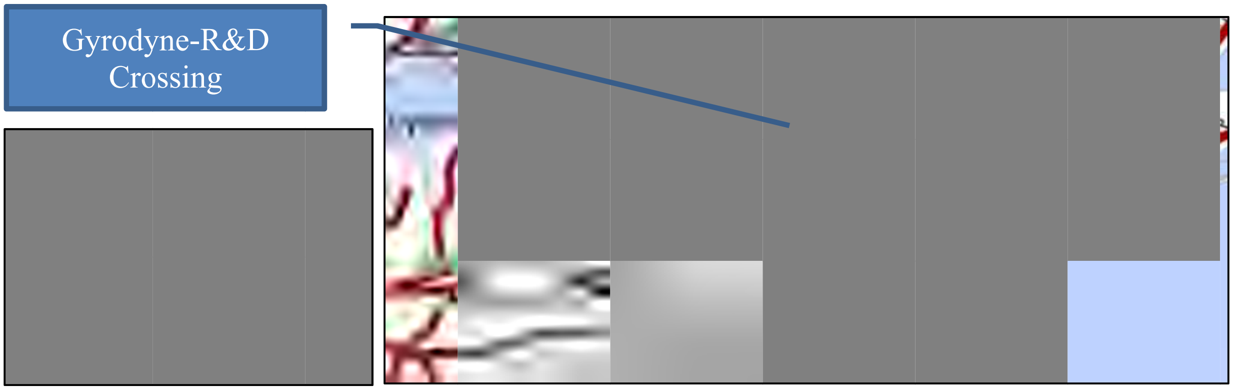
Photograph Set 7: Looking East at the Gyrodyne (north) side of the Crossing





Rail weight limits: According to the NYSDOT Office of Integrated Modal Services Freight Bureau (*map excerpt below*), all LIRR tracks are rated for rail cars weighing 263,000 to 273,000 pounds.

Figure 8: Excerpt of Rail Car Weight Limits (NYSDOT)



<u>Preliminary Investigation by LIRR</u>

Gyrodyne and its consultants have begun communications with the LIRR through Mr. Brian Saltz, Esq., LIRR Assistant Deputy General Counsel. Mr. Saltz relayed the results of a preliminary site visit and field review by LIRR's Principal Engineer - Signal Investigations, Standards, & Special Projects in early 2018. It is presumed that the LIRR engineer's field inspection accessed the track area (not accessible to Gyrodyne's engineers). The LIRR engineer made a preliminary list of improvements that should be made in the short-term, immediately upon opening the crossing, with or without the proposed subdivision. The list of immediate/short-term improvements includes:

(a) Repair the crossing pads

(b) Clean the approaches to the crossing; the old tracks south of the crossing are weeded

(c) Install additional flashers on the north side (facing westbound traffic from the side street) and on the south side (facing eastbound traffic from the side street)

(d) Trip vegetation on the adjoining properties (mainly the south side)

(e) Install stop lines, pavement edge lines, and roadway signage

The LIRR engineer noted that in the longer term, based on the types of vehicles (e.g. trucks) and number of pedestrians expected to use the crossing, the crossing may require additional stop signs, curbs, signage, and roadway profiling.

Additionally, LIRR noted that the highway grade crossing "case and components" are close to their usable life expectancy and will need full replacement soon.

<u>Findings to Date Regarding the Proposed Crossing</u>

The NYSDOT Highway Design Manual (HDM) Chapter 23 (Railroads) discusses a number of elements that should factor into the geometric design of a highway-railroad grade crossing:

- Vehicle speeds and volumes
- Train speeds and volumes
- Accident history
- Sight distance
- Crossing skew
- Number of tracks
- Highway approach grade

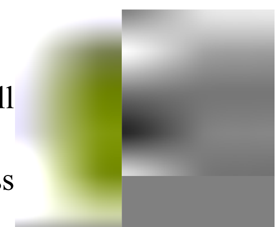
- Length of trains
- Consistency of the type of warning devices with other at-grade crossings
- The presence of pedestrians and bicyclists
- Use of the crossing by school buses or trucks carrying hazardous materials
- Emergency services

As of May 2018, the crossing area is conceptually laid out, and would comply with NYSDOT HDM geometric requirements, as follows:

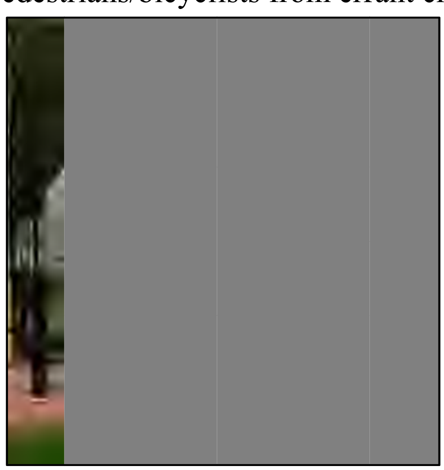
1) The vehicle path and the train tracks cross at a nearly perpendicular angle
2) There aren't sharp horizontal curves on the Gyrodyne approaches to the crossing
3) There are no nearby highway intersections that would present clearance issues across the track or require traffic signal interconnection
4) The full width of the travel lanes, shoulders, and pedestrian facilities would be consistent on the road approaches and through the crossing
5) The crossing itself appears level, and the existing vertical grade change north of the tracks (which would be modified/lessened) does not present sight obstructions

<u>Crossing Recommendations – Short or Long Term</u>
For the purposes of safety, any additional recommendations beyond the LIRR engineer's list should be implemented upon opening the crossing. Subject to the determination of the NYSDOT Freight and Economic Development Division (FEDD), the short- and long-term projected crossing volumes are not sufficiently different to justify delaying improvements that may be appropriate.

Based on our observations to date, additional recommendations include:



1) Sufficient streetlight illumination of the crossing for safety and visibility (this will be an inherent element of the subdivision's eventual lighting plan).
2) Install "Railroad Crossing" warning signs on both approaches and on the cross streets (Parkside Drive, Development Drive) as required in the N.Y.S. MUTCD Supplement, and supplemental signage stating the prohibition against passing lowered railroad gates (*images at right*).
3) The third recommendation is pending, until access is obtained past the fences or until LIRR confirms the length of the existing gate arms. The gate arms must be long enough to completely block vehicle <u>and</u> pedestrian movements when the gate arms are down. Shorter sidewalk-length gate arms (*sample image below*) may be needed to effectively prevent pedestrians/bicyclists from errant crossings when the warning system is active.



APPENDIX F:

TRAFFIC SIGNAL WARRANT STUDIES

NYS ROUTE 25A RELOCATED DRIVEWAY
MILLS POND ROAD EXISTING DRIVEWAYS

Signal Warrant Study: Site Driveways

Cameron Engineering conducted a traffic signal warrant study to determine if projected conditions justify signalizing any of the existing/proposed site driveways. Of the nine warrants, only two could potentially apply to this intersection:

- Warrant 1 (Eight-Hour Vehicular Volume)
- Warrant 2 (Four-Hour Vehicular Volume)

The remaining seven warrants do not apply as a matter of course (e.g., the driveways are not established school crossings or railroad crossings, they do not represent "major routes," etc.)

As shown below, neither applicable warrant is satisfied, so the existing and proposed driveway will not justify signalization.

Warrant 1: 8-Hour Volumes

None of the volume combinations satisfy Warrant 1 for 8 hours, so Warrant 1 is not met.

Table B: Projected Build Approach Volumes

	VEHICLES PER HOUR	
	NYS Route 25A / Mills Pond Road (total of both approaches)	Driveway Exit Volumes Mills Pond 1 / Mills Pond 2 / 25A
Warrant 1 Condition A	**500**	**150**
Warrant 1 Condition B	*750*	*75*
Weekday 7-8 am	***1,516*** / 135	4 / *137* / 41
Weekday 8-9 am	***1,703*** / 184	4 / *137* / 41
Weekday 9-10 am	***1,291*** / 214	4 / *137* / 41
Weekday 3-4 pm	***1,587*** / 252	3 / ***264*** / *115*
Weekday 4-5 pm	***1,847*** / 332	3 / ***264*** / *115*
Weekday 5-6 pm	***1,974*** / 287	3 / ***264*** / *115*
Friday 6-7 pm	***1,031*** / 17	6 / *91* / 0
Friday 7-8 pm	**713** / 26	7 / 69 / 0

Bold numbers meet Condition A. *Italicized* numbers meet Condition B.
Numbers in bold italics meet both conditions.

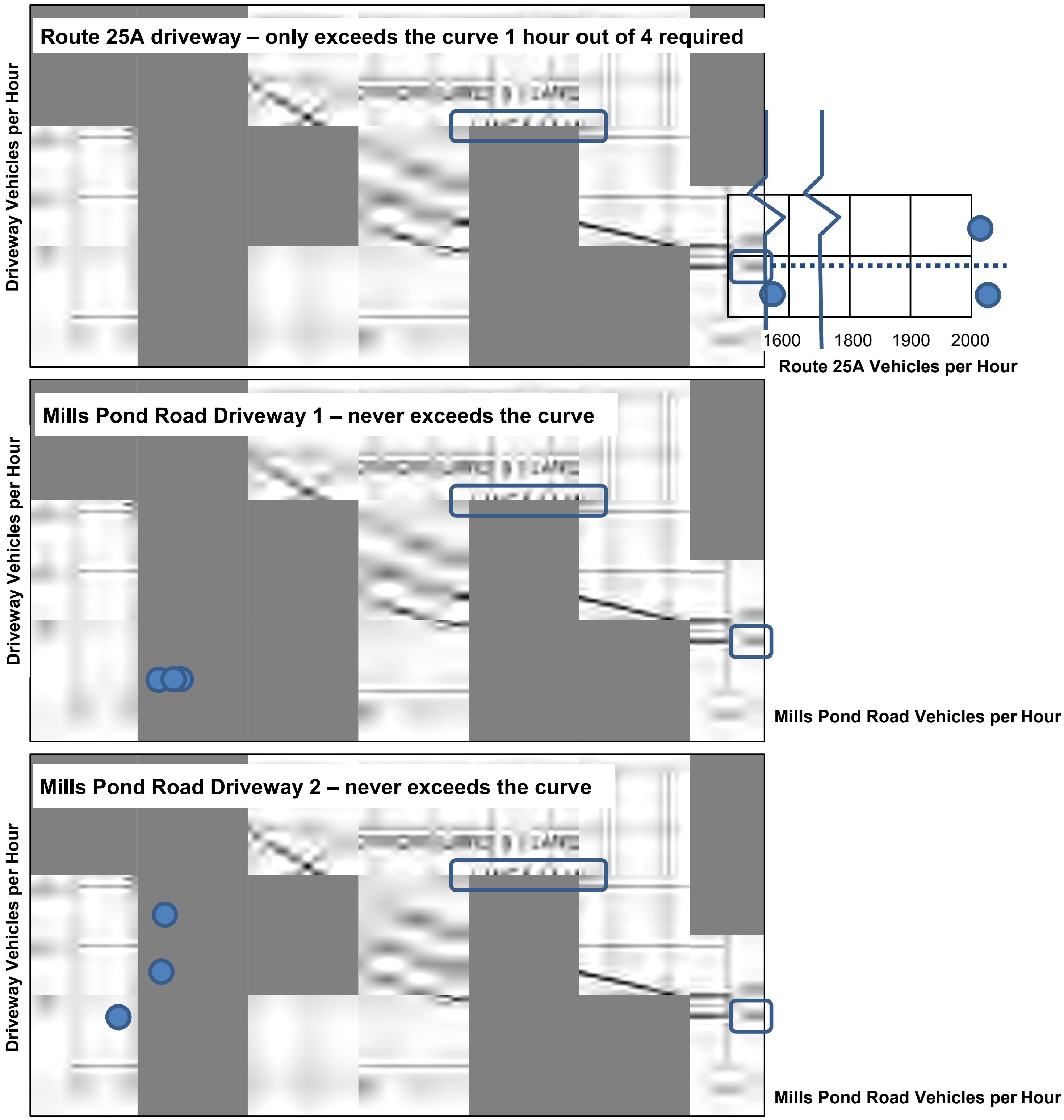
Warrant 2: 4-Hour Volumes

None of the volume combinations satisfy Warrant 2 for 4 hours, so Warrant 2 is not met. This warrant requires the plotted points of the main road-minor driveway traffic to exceed the values shown in the appropriate curves from the MUTCD[1], shown in Figure 1 on the next page.

[1] Figure Source: MUTCD page 440, Figure 4C-1: Warrant 2, Four-Hour Vehicular Volume
Accessed at https://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Since no warrants are satisfied, the existing and proposed driveways do not merit signalization.

Figure 1: Warrant 2 analysis of Site Driveways



APPENDIX G:

BUILD AND MITIGATED BUILD
LEVEL OF SERVICE/SYNCHRO WORKSHEETS

1. Route 25A at Mills Pond Road
2. Route 25A at Stony Brook Road
3. Route 25A at Lake Avenue
4. Route 25A at Moriches Road
5. Moriches Road at Lake Avenue
6. Moriches Road at Mills Pond Road
7. Moriches Road at Woodlawn Avenue
8. Route 347 at Moriches Road
9. Route 25A at Main Street
10. Stony Brook Road at South Drive
11. Stony Brook Road at Oxhead Road
12. Stony Brook Road at Hallock Road
13. Stony Brook Road at Route 347
14. Mills Pond Road Site Access 1
15. Mills Pond Road Site Access 2
16. NYS Route 25A Site Access
17. Stony Brook Road at Development Drive

HCM 6th Signalized Intersection Summary
1: Mills Pond Road & NYS Route 25A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1011	57	173	914	35	138
Future Volume (veh/h)	1011	57	173	914	35	138
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1885	1885	1900	1900
Adj Flow Rate, veh/h	1064	0	182	962	37	145
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	1	1	0	0
Cap, veh/h	1276		312	1487	141	208
Arrive On Green	0.68	0.00	0.05	0.79	0.08	0.08
Sat Flow, veh/h	1870	1585	1795	1885	1810	1610
Grp Volume(v), veh/h	1064	0	182	962	37	145
Grp Sat Flow(s),veh/h/ln	1870	1585	1795	1885	1810	1610
Q Serve(g_s), s	37.8	0.0	2.5	19.8	1.7	7.0
Cycle Q Clear(g_c), s	37.8	0.0	2.5	19.8	1.7	7.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1276		312	1487	141	208
V/C Ratio(X)	0.83		0.58	0.65	0.26	0.70
Avail Cap(c_a), veh/h	1276		380	1487	141	208
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.6	0.0	16.3	4.1	39.1	37.5
Incr Delay (d2), s/veh	6.5	0.0	1.7	2.2	1.0	9.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.2	0.0	2.2	4.2	0.8	7.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.1	0.0	18.0	6.3	40.1	47.3
LnGrp LOS	B		B	A	D	D
Approach Vol, veh/h	1064	A		1144	182	
Approach Delay, s/veh	17.1			8.2	45.8	
Approach LOS	B			A	D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	9.6	67.4		13.0		77.0
Change Period (Y+Rc), s	5.0	6.0		6.0		6.0
Max Green Setting (Gmax), s	8.0	58.0		7.0		71.0
Max Q Clear Time (g_c+I1), s	4.5	0.0		9.0		0.0
Green Ext Time (p_c), s	0.2	0.0		0.0		0.0

Intersection Summary			
HCM 6th Ctrl Delay			15.0
HCM 6th LOS			B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th TWSC
2: 25A & Stony Brook Road

Intersection	
Int Delay, s/veh	15.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	256	0	651	422	0	829
Future Vol, veh/h	256	0	651	422	0	829
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Free	-	Free
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	269	0	685	444	0	873

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1558	-	0	-	-	-
Stage 1	685	-	-	-	-	-
Stage 2	873	-	-	-	-	-
Critical Hdwy	6.42	-	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	-	-
Pot Cap-1 Maneuver	~ 124	0	-	0	0	-
Stage 1	500	0	-	0	0	-
Stage 2	409	0	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	~ 124	-	-	-	-	-
Mov Cap-2 Maneuver	~ 261	-	-	-	-	-
Stage 1	500	-	-	-	-	-
Stage 2	409	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	106.5	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	261	-
HCM Lane V/C Ratio	-	1.032	-
HCM Control Delay (s)	-	106.5	-
HCM Lane LOS	-	F	-
HCM 95th %tile Q(veh)	-	10.6	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th TWSC
3: Lake Avenue/Fire Dept & Route 25A

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	928	0	197	871	0	0	0	215	0	0	0
Future Vol, veh/h	0	928	0	197	871	0	0	0	215	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	250	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	98	98	98	98	92	98	92	98	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	947	0	201	889	0	0	0	219	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	889	0	0	947	0	0	-	2238	947	2348	2238	889
Stage 1	-	-	-	-	-	-	-	947	-	1291	1291	-
Stage 2	-	-	-	-	-	-	-	1291	-	1057	947	-
Critical Hdwy	4.12	-	-	4.12	-	-	-	5	5	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	-	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	-	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	762	-	-	725	-	0	0	109	437	25	42	342
Stage 1	-	-	-	-	-	0	0	340	-	201	234	-
Stage 2	-	-	-	-	-	0	0	234	-	272	340	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	762	-	-	725	-	-	-	79	437	10	30	342
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	79	-	10	30	-
Stage 1	-	-	-	-	-	-	-	340	-	201	169	-
Stage 2	-	-	-	-	-	-	-	169	-	135	340	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	2.2	21.3	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	437	762	-	-	725	-	-
HCM Lane V/C Ratio	-	0.502	-	-	-	0.277	-	-
HCM Control Delay (s)	0	21.3	0	-	-	11.9	-	0
HCM Lane LOS	A	C	A	-	-	B	-	A
HCM 95th %tile Q(veh)	-	2.7	0	-	-	1.1	-	-

HCM 6th Signalized Intersection Summary
4: Route 25A & Moriches Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	63	116	12	180	78	0	12	868	99	0	832	35
Future Volume (veh/h)	63	116	12	180	78	0	12	868	99	0	832	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	0	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	66	122	13	189	82	0	13	914	104	0	876	37
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	0	2	2	2	0	2	2
Cap, veh/h	423	467	50	377	525	0	54	1056	928	0	1043	44
Arrive On Green	0.28	0.28	0.27	0.28	0.28	0.00	0.59	0.59	0.59	0.00	0.59	0.59
Sat Flow, veh/h	1316	1661	177	1254	1870	0	8	1804	1585	0	1782	75
Grp Volume(v), veh/h	66	0	135	189	82	0	927	0	104	0	0	913
Grp Sat Flow(s),veh/h/ln	1316	0	1838	1254	1870	0	1812	0	1585	0	0	1857
Q Serve(g_s), s	3.0	0.0	4.3	10.3	2.5	0.0	2.6	0.0	2.2	0.0	0.0	30.0
Cycle Q Clear(g_c), s	5.4	0.0	4.3	14.6	2.5	0.0	32.6	0.0	2.2	0.0	0.0	30.0
Prop In Lane	1.00		0.10	1.00		0.00	0.01		1.00	0.00		0.04
Lane Grp Cap(c), veh/h	423	0	516	377	525	0	1109	0	928	0	0	1087
V/C Ratio(X)	0.16	0.00	0.26	0.50	0.16	0.00	0.84	0.00	0.11	0.00	0.00	0.84
Avail Cap(c_a), veh/h	511	0	639	461	650	0	1601	0	1357	0	0	1589
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	22.3	0.0	20.9	26.5	20.2	0.0	12.8	0.0	6.9	0.0	0.0	12.6
Incr Delay (d2), s/veh	0.1	0.0	0.2	0.8	0.1	0.0	3.3	0.0	0.1	0.0	0.0	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	1.7	2.9	1.0	0.0	10.3	0.0	0.6	0.0	0.0	10.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.4	0.0	21.1	27.3	20.3	0.0	16.1	0.0	7.0	0.0	0.0	16.1
LnGrp LOS	C	A	C	C	C	A	B	A	A	A	A	B
Approach Vol, veh/h		201			271			1031			913	
Approach Delay, s/veh		21.5			25.2			15.2			16.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		49.8		25.0		49.8		25.0				
Change Period (Y+Rc), s		6.0		5.0		6.0		5.0				
Max Green Setting (Gmax), s		64.0		25.0		64.0		25.0				
Max Q Clear Time (g_c+I1), s		34.6		7.4		32.0		16.6				
Green Ext Time (p_c), s		9.2		0.5		8.2		0.5				

Intersection Summary			
HCM 6th Ctrl Delay			17.2
HCM 6th LOS			B

HCM 6th Signalized Intersection Summary
5: Lake Avenue & Moriches Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	88	152	21	149	30	98	190	12	15	189	0
Future Volume (veh/h)	1	88	152	21	149	30	98	190	12	15	189	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1945	1945	1945	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	96	0	23	162	33	107	207	13	16	205	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	100	578		148	549	512	675	824	52	661	885	0
Arrive On Green	0.31	0.31	0.00	0.31	0.31	0.31	0.47	0.47	0.41	0.47	0.47	0.00
Sat Flow, veh/h	6	1860	1585	123	1767	1648	1177	1741	109	1161	1870	0
Grp Volume(v), veh/h	97	0	0	185	0	33	107	0	220	16	205	0
Grp Sat Flow(s),veh/h/ln	1867	0	1585	1891	0	1648	1177	0	1851	1161	1870	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.5	2.2	0.0	2.6	0.3	2.4	0.0
Cycle Q Clear(g_c), s	1.4	0.0	0.0	2.7	0.0	0.5	4.6	0.0	2.6	3.0	2.4	0.0
Prop In Lane	0.01		1.00	0.12		1.00	1.00		0.06	1.00		0.00
Lane Grp Cap(c), veh/h	678	0		697	0	512	675	0	875	661	885	0
V/C Ratio(X)	0.14	0.00		0.27	0.00	0.06	0.16	0.00	0.25	0.02	0.23	0.00
Avail Cap(c_a), veh/h	1256	0		1270	0	1025	1263	0	1801	1241	1820	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	9.3	0.0	0.0	9.7	0.0	9.0	7.1	0.0	5.9	6.7	5.8	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.8	0.0	0.1	0.4	0.0	0.7	0.1	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.4	0.0	0.0	9.9	0.0	9.0	7.2	0.0	6.0	6.7	5.9	0.0
LnGrp LOS	A	A		A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		97	A		218			327			221	
Approach Delay, s/veh		9.4			9.8			6.4			6.0	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		21.5		15.5		21.5		15.5
Change Period (Y+Rc), s		* 6.5		5.5		* 6.5		5.5
Max Green Setting (Gmax), s		* 34		21.5		* 34		21.5
Max Q Clear Time (g_c+I1), s		6.6		3.4		5.0		4.7
Green Ext Time (p_c), s		1.3		0.2		0.8		0.6

Intersection Summary	
HCM 6th Ctrl Delay	7.5
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.