APPENDIX F

TRANSPORTATION-RELATED DOCUMENTS

Appendix F-1
Traffic Impact Study

N&P, LLP

Updated May 2020

Traffic Impact Study

Greybarn-Sayville Planned Development District

Prepared for: Rechler Equity Partners

November 2018

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N&P Property No. 16130

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EXECUTIVE SUMMARY

Nelson & Pope conducted a detailed Traffic Impact Study for the proposed Planned Development District consisting of a 1,365-unit rental residential community. The traffic impact study was designed to identify traffic issues within and around the Study Area associated with the proposed project and evaluate how any resulting traffic issues can be mitigated. The proposed project is located on the site of the former Island Hills Country Club, a 114.33-acre property in the hamlet of Sayville, Town of Islip, Suffolk County, New York. The subject site is located on the west side of Lakeland Avenue and the east sides of Bohemia Parkway and Hauppauge Road, between 11th Street and Sterling Place; the address of the site is 458 Lakeland Avenue.

The traffic study followed the final scope, approved by the Town of Islip, for the Draft Environmental Impact Statement. Key items of the final scope are summarized below:

- Conducted a detailed field inventory of the Study Area.
- Collected turning movement counts at the study intersections during the weekday AM, PM peak and Saturday midday school peak periods and during the weekday AM, PM, Friday PM and Saturday midday summer peak periods.
- Collected Hourly volume counts and speed data on the study area roadway segments for a period of one week for both the school peak and summer seasons.
- To address concerns raised by the Sayville residents on the potential impacts of the proposed project on the existing congestion on Brook Street and Montauk Highway due the traffic bypassing the congestion at the Heckscher Spur interchange with NYS Route 27, travel time and delay runs were conducted along both routes for a typical AM and PM peak period during both the school peak and summer seasons to compare travel times using both routes..
- Conducted accident analyses for the intersections and roadway segments within the Study Area.
- Performed trip generation calculations (anticipated traffic generated) for the proposed project by using statistical data contained in ITE Trip Generation, 10th Edition.
- Developed future volumes for each development phase by applying growth factors derived from US population census population projections, information developed for the New York Metropolitan Transportation Council's Best Practices Model (BMP), and the Suffolk County Comprehensive Plan 2035 and the 2009 Sunrise Highway Corridor Study. Six (6) development phases were analyzed.
- Conducted capacity analyses at the study intersections for the No Build and Build years corresponding to each of the development phases using the SYNCHRO version 10 software.
- Conducted an arterial analysis and measures of effectiveness (MOEs) for the Lakeland Avenue/Railroad Avenue corridor during the weekday AM and PM school peak periods to determine the operation of the corridor with and without the proposed project.
- Reviewed capacity and corridor analyses to identify existing and future intersection and corridor deficiencies.
- Developed realistically executable plans to improve traffic deficiencies associated with the proposed project.
- The developed plans were analyzed. The results of the analyses with and without the mitigations were compared.

The following is a summary of the improvements recommended. Details of the improvements for affected intersections can be found within the body of the report.

Based on the results of the Traffic Impact Study as detailed in the body of this report, the construction of Phases 1, 2 and 3 of the proposed project, totaling 678 residential units, will not significantly impact the operation of the roadways and intersections adjacent to the site. The impacts created by Phases 4, 5 and 6 (up to the full build out of 1,365 residential units) can be mitigated by the implementation of the following improvement measures. With these improvement measures, the intersections in the study area and the Lakeland Avenue/Railroad Avenue corridor will continue to operate at No Build or better levels of service after the full build out of the project.

- The southbound approach of the intersection of Lakeland Avenue at NYS Route 27 North Service Road which currently provides an exclusive through lane, a shared through/right turn lane and an exclusive right turn lane will be redesigned to provide two exclusives through lanes and two exclusive right turn lanes. Minor signal timing adjustments will also be conducted for the northbound left turn phase.
- The northbound approach of the intersection of Lakeland Avenue and Tariff Street/Johnson Avenue will be widened to provide an exclusive left turn lane enabling the redistribution of green time to improve the failing westbound approach.
- Widen Lakeland Avenue between Chester Road and 11th Street to provide an additional northbound through lane. The widening will begin around Eastover Road and extends to meet the existing 2 lane section of Lakeland Avenue just north of 11th Street. The segment of Lakeland Avenue between Eastover Road and Chester Road will be striped to provide one shared northbound left turn/through lane into Chester Street and one through lane.

INTRODUCTION

Project Description

The proposed project requires rezoning the site from its' existing Residence AAA designation to a Planned Development District (PPD) zone in order to develop 1,365-unit rental residential community. This proposed project is located on the site of the former Island Hills Country Club, a 114.33-acre property in the hamlet of Sayville, Town of Islip, Suffolk County, New York. The subject site is located on the west side of Lakeland Avenue and the east sides of Bohemia Parkway and Hauppauge Road, between 11th Street and Sterling Place; the address of the site is 458 Lakeland Avenue.

The applicant has used the Town's Residence CA zoning district, which the Town Board instituted for multi-family residential development. In this way, the site will be built under development standards that are well-established in the Town, so that the physical layout of the site will be consistent with other CA-zoned properties.

Nelson & Pope (N&P) has conducted a comprehensive Traffic Impact Study (TIS) for the proposed change of zone to PDD for the 1,365-unit residential development known as **Greybarn-Sayville Planned Development District** (PDD; hereafter, the *"proposed project"*, to evaluate the potential traffic impacts that may be associated with the proposed project. This will be accomplished by estimating future traffic conditions at key intersections (totaling 36 intersections within and outside of the Study Area), with and without the proposed project to identify traffic impacts of the development scenario (s) and provide appropriate improvements to mitigate these impacts, if necessary.

This report summarizes the results of a detailed investigation of the traffic impacts associated with the development scenario(s) by reviewing the area's existing roadway characteristics and traffic conditions, estimating the vehicular volume and traffic pattern that will be generated during peak hours, and analyzing the effect of the additional volume on the surrounding roadway network. The following Figures show the Study Area and Study Intersections.

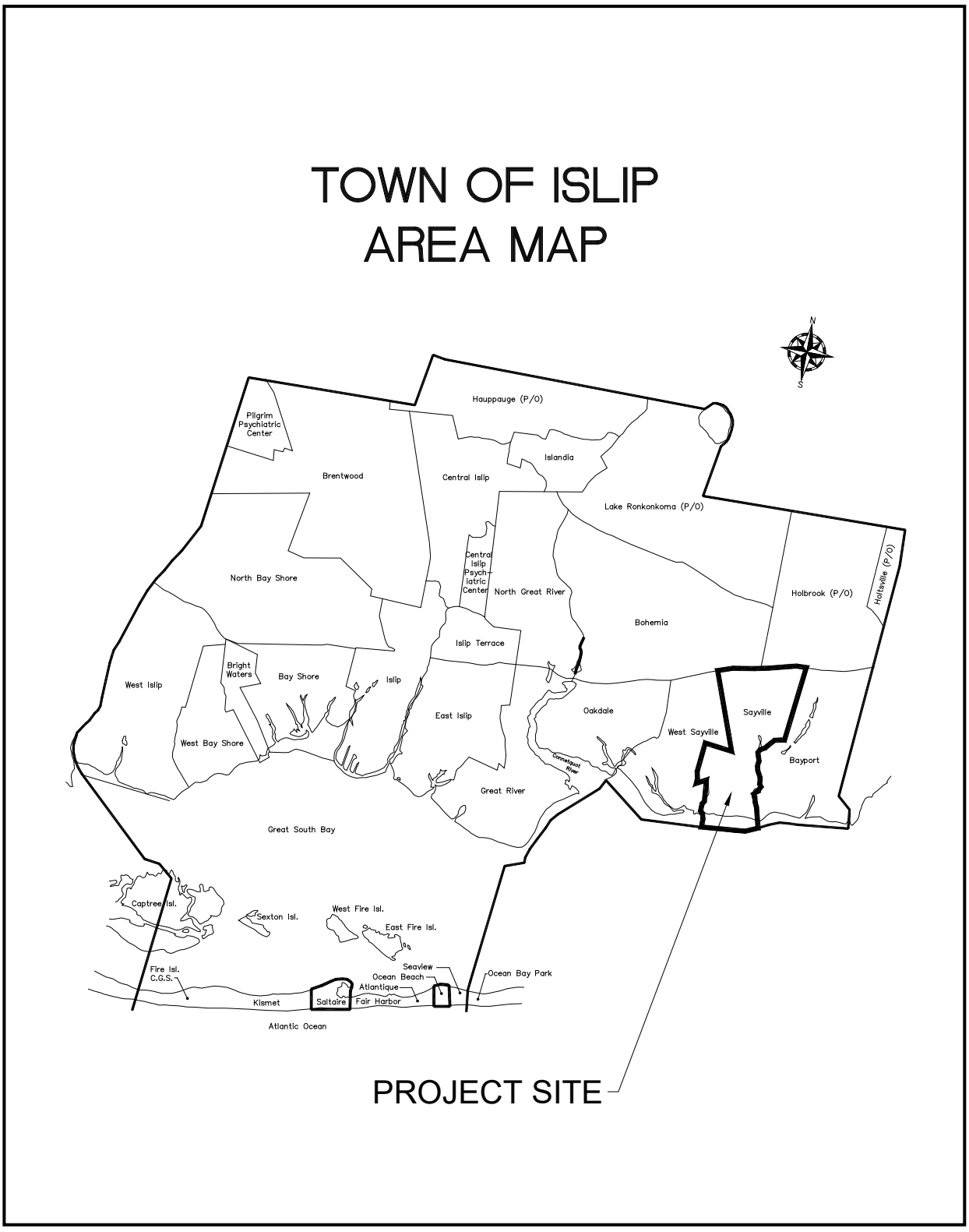


Figure 1: Study Area Map

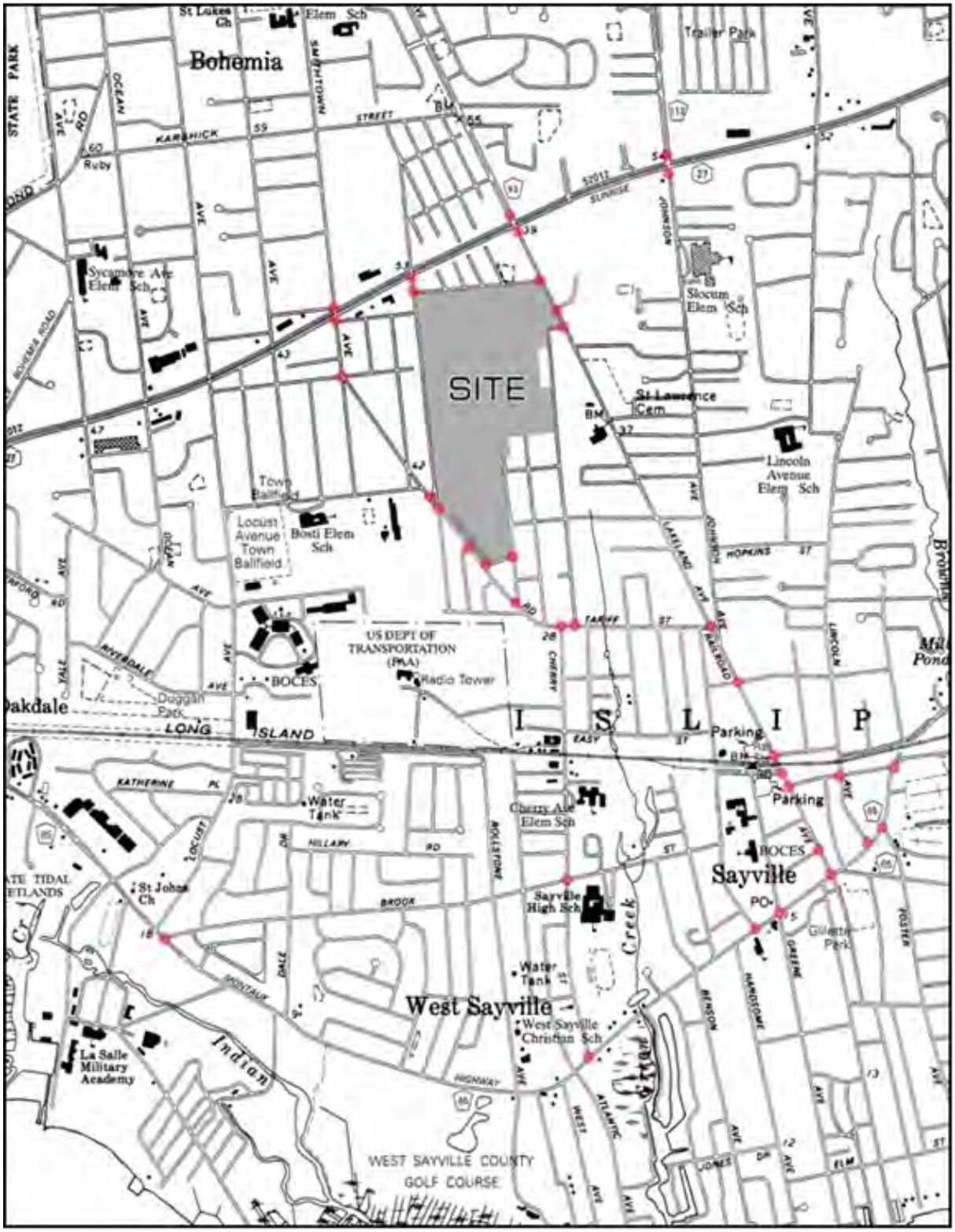


Figure 2: Study Intersections

Study Methodology

The study assesses the traffic impacts associated with the proposed project and identifies appropriate mitigation, if necessary. The following scope of work, approved by the Town of Islip, was completed for this study:

- N&P reviewed related documents to identify any relevant information that may assist in conducting the traffic impact study.

- Performed a field inventory of existing roadway features including geometry, lane widths, traffic control, pavement markings, parking restrictions, traffic signal timing and phasing. Right of way, pavement width, composition and condition, curb, sidewalk, drainage and alignment including horizontal and vertical curvature was obtained and discussed. A description, including photographs and drawings of current physical and operation conditions on all frontage roadways was provided.

- In addition to the frontage roads, a thorough description of the other roadways and intersections that will be impacted by the traffic generated by the proposed project, including right of way width, the number of travel lanes, traffic control, curb, sidewalk, shoulder, parking regulations, speed limits, drainage, utilities, lighting, transit and bike facilities will be provided. The physical condition and any plans for improvements by the responsible agency will be provided. A discussion of existing operating conditions based on field observations as well as the results of the capacity analyses and modeling efforts was provided.

- N&P performed an inventory of pedestrian and bicycle facilities along study area roadways and intersections.

- N&P performed an inventory of public transportation services.

- In addition to the field inventories, N&P's project files were reviewed for any relevant data or project information that would assist the Team. All information was reviewed and evaluated to develop a familiarity with the project area and to identify notable traffic influences. During site visits, the roadways and intersections were photographed as necessary to provide an available reference throughout the term of the project study.

- Obtained existing historic traffic volumes on all State and County roadways in the vicinity of the study area from the New York State Department of Transportation (NYSDOT) and Suffolk County Department of Public Works (SCDPW) and other agencies, where available.

- Utilized Miovision cameras to record traffic volumes from 6am to 8pm on a typical weekday and 9am to 6pm on a Saturday when schools were in session and a typical weekday, Friday and Saturday in the summer at the following intersections. The videos were processed for the AM, PM and Saturday peak hours obtained from the ATR and agency data verified by the Town of Islip.

1) Smithtown Avenue (CR29) at NYS Route 27 North Service Road
2) Smithtown Avenue (CR29) at NYS Route 27 South Service Road
3) Lakeland Avenue at NYS Route 27 North Service Road
4) Lakeland Avenue at NYS Route 27 South Service Road
5) Johnson Avenue at NYS Route 27 North Service Road
6) Johnson Avenue at NYS Route 27 South Service Road
7) Lakeland Avenue at 11th Street
8) Lakeland Avenue at Gibbons Court
9) Lakeland Avenue at Chester Road
10) Lakeland Avenue at Johnson Avenue/Railroad Avenue/Tariff Street
11) Railroad Avenue at Manton Street
12) Lakeland Avenue at Henry Street
13) Railroad Avenue at Depot Street
14) Railroad Avenue at Hiddink Street
15) Railroad Avenue at Center Street
16) Montauk Highway at Brook Street
17) Montauk Highway at Cherry Avenue
18) Montauk Highway at Greeley Avenue
19) Montauk Highway at Greene Avenue
20) Montauk Highway at Railroad Avenue/Gillette Avenue
21) Montauk Highway at Lincoln Avenue
22) Montauk Highway at Foster Avenue
23) Montauk Highway at Hiddink Street
24) Smithtown Avenue at Island Boulevard/Terry Road
25) Terry Road at Bohemia Parkway
26) Terry Road at St. Johns Street
27) Terry Road at Sterling Place
28) Terry Road Carrie Avenue
29) Tariff St Cherry Avenue
30) Tariff Street Chester Road
31) NYS Route 27 South Service Road at Bohemia Parkway
32) Bohemia Parkway at 11th Street
33) Carrie Avenue at Marion Street
34) Carrie Avenue at Sterling Place
35) Cherry Avenue at Brook Street
36) Lincoln Avenue at Hiddink Street

- To address concerns raised by Sayville residents on the potential impacts of the proposed project on the existing congestion on Brook Street and Montauk Highway due the traffic bypassing the congestion at the Heckscher Spur interchange with NYS Route 27, travel time and delay runs were conducted along both routes for a typical AM (7am-9am) and PM (4pm-7pm) peak periods during both the school peak and summer seasons to compare travel times using both routes. The increase in use of Brook Street and Montauk Highway by the traffic from the proposed project to avoid congestion at the interchange was quantified and analyzed. A minimum of three (3) runs were conducted along each corridor during each time.

- Automatic Traffic Recorder (ATR) machines were installed for a period of one (1) standard full school week not preceding or succeeding a federal holiday or school closure and for one (1) week during the peak summer season, at the following roadways within the study area to obtain operating speeds, hourly and daily (24 hour) volumes to verify the peak hours and to supplement the turning movement counts:

  1) NYS Route 27 South Service Road between Smithtown Avenue and Lakeland Avenue
  2) Lakeland Avenue between Gibbons Court and 11th Street
  3) Johnson Avenue south of Sunrise Highway South Service Road
  4) Smithtown Avenue between Sunrise Highway South Service Road and Terry Road

5) Johnson Avenue
6) Terry Road
7) Bohemia Parkway
8) 11th Street
9) Chester Road
10) Carrie Avenue
11) Railroad Avenue
12) Greene Avenue
13) Greeley Avenue
14) Cherry Avenue
15) Brook Street
16) Montauk Highway

- The ATR count data was tabulated and summarized to identify the peak hours to be utilized in the processing of the turning movement counts.

- The turning movement count data was summarized to identify peak hour factors, heavy vehicles and bus percentages to be utilized in the traffic analyses.

- Accident records for the most recent 3-years was obtained from NYSDOT for the study intersections and adjacent roadways. Crash data was tabulated by severity of injury and type of collision. Identified patterns and trends in the Traffic Impact Study. Developed crash rates and provided a comparison between current rates and crash rates on similar facilities statewide, as per standard traffic engineering practice. Provided a discussion of the project's potential impact on crash rates and mitigate if required.

- The Town of Islip was contacted to obtain information on Other Planned Developments/Proposals in the nearby area that may affect the study intersections. The projects provided to us by the Town were considered in the analyses. These studies included the impacts for Islip Pines and Ronkonkoma Hub. Future projected traffic conditions reflected traffic that will be generated by other planned and proposed developments in the vicinity of the project site, phased appropriately based on traffic studies conducted for these projects.

- Based on information obtained from the applicant, the proposed PDD will be constructed in six (6) phases. The traffic analyses were conducted for six (6) scenarios, one (1) for each phase.

- Developed future No Build volumes for the study intersections. The Existing volumes were adjusted to future No Build Volumes using annual growth factors derived from US population census population projections, information developed for the New York Metropolitan Transportation Council's Best Practices Model (BMP), and the Suffolk County Comprehensive Plan 2035 and the 2009 Sunrise Highway Corridor Study. The methodology utilized is documented in the study and was submitted to the Town for their review and concurrence before being utilized in the study. As part of this study, twelve (12) No Build Scenarios were analyzed:

- A No Build Condition that will not include any other planned projects -The No Build volumes for this scenario will represent traffic conditions expected at the study area in a future year without the development of the proposed action and any other planned developments in the area. This analysis is used in the identification of project specific site impacts. One (1) No Build Condition without other planned projects was done for each phase, resulting in six (6) No Build Conditions without other planned developments.

- A No Build Condition that will include other planned developments in the area - The No Build volumes for this scenario will represents traffic conditions expected at the study area in a future year including other planned developments in the area without the development of the proposed project. One (1) No Build Condition with other planned developments was done for each phase, resulting in six (6) No Build Conditions with other planned developments.

- Performed trip generation calculations (anticipated traffic generated) for the proposed project by using statistical data contained in ITE Trip Generation, 10th Edition. To perform a conservative analysis, no vehicle trip credit for transit use was taken. All assumptions regarding trip generation are included in **Appendix G**.

- Conducted a modal split analysis to determine the different modes of transportation available in the study area and their split. Compare the modal split obtained from the analyses to modal split information provided in the 2010 US Census for the study area.

- Prepared a trip distribution and assignment of traffic anticipated to be generated by the proposed project. Directional distribution and assignment of site generated traffic was based on an analysis of likely origins and destinations of the site-generated trips. Assumptions regarding trip-making characteristics, including number of trips, trip purpose and temporal distributions were documented (e.g. US Census, the Suffolk County Comprehensive Plan 2035, Islip Town Planning documents, information from the New York Metropolitan Transportation Council (NYMTC), the Metropolitan Planning Organization (MPO) representing New York City, Long Island and Lower Hudson Valley and presented in the report.

- Developed Build Condition volumes for the study roadways and intersections by adding the estimated traffic generated by the proposed project to the No Build volumes reflecting project phasing. Vehicle trips were assigned to the roadway network based on anticipated origin and destinations, the configuration and location of proposed site access points, the configuration of the existing roadway network, and prevailing traffic patterns. Separate distributions and assignments were provided for weekday AM and PM and weekend peak hours for work trips and other home-based trips. A detailed description of the methodology and assumptions made for the trip distributions and assignments was submitted to the Town for their review and concurrence before being utilized in the study.

- Traffic flow maps were prepared for the existing conditions, the No Build and Build conditions for the full build-out scenario for each peak hour.

- Performed capacity analyses for the study intersections and roadways identified above. Analyses were performed using the *Synchro Version 10* software in order to provide level of service results for the study network. Analyses included peak school year and summer season weekday and weekend hour. Peak hours were determined based on automatic traffic recorder (ATR) counts conducted on the roadways listed under project data development during school and summer seasons. The turning movement counts were conducted during the peak hours identified in the ATR data. Summer season analyses considered Friday PM peak hour traffic. Vehicle classification and pedestrian counts were reflected in the simulation and evaluation models. Simulations were conducted using Simtraffic 10 software.

- All input assumptions utilized in the capacity analyses of the existing traffic conditions were documented. Input files are available to the Town for review purpose. The models were calibrated, and the model results for each existing condition scenario were validated based on comparison to field observations and measurements of travel time, vehicle speeds and delays.

- The analyses were completed for the following conditions during the weekday AM and PM and Saturday midday peak hours for both the school and summer peak season and the Friday PM peak hour during the summer season.

    1) Existing Conditions
    2) No Build Conditions without other planned developments in the area (six (6) phases)
    3) No Build Conditions with other planned developments in the area (six (6) phases)
    4) Build Conditions without other planned developments in the area (five (5) phases and a full build out phase upon completion of 100% of proposed project)
    5) Build Conditions with other planned developments in the area (five (5) phases and a full build out phase upon completion of 100% of proposed project)
    6) Build with mitigation Conditions without other planned developments in the area (five (5) phases and a full build out phase upon completion of 100% of proposed project)
    7) Build with mitigation Conditions with other planned developments in the area (five (5) phases and a full build out phase upon completion of 100% of proposed project.

- Identified impacts at study intersections for the build scenario(s) and developed executable mitigation measures, including expansion and incentives to utilize mass transit and active transportation.

- The Sayville Stop of the Montauk branch of the Long Island Railroad (LIRR) is located within 1.5 miles of the study area. The traffic analyses included the influence on traffic conditions of the LIRR at grade crossings, including queue development and discharge during and after crossing gate actuation. Traffic congestion associated with the railroad crossing was reviewed and evaluated.

- Parking surveys were conducted during peak weekday commuter peak periods at the existing LIRR parking lots and municipal parking areas in the downtown Sayville commercial district to determine peak parking supply and demand. The potential number of residents in the proposed

project that will utilize these parking facilities was estimated. Conducted a parking analyses to determine if there is available parking in the downtown area and LIRR parking lot to accommodate the new residents and provide mitigations if necessary.

- A general review of the Ronkonkoma LIRR Train Station was conducted taking into consideration the development of the Ronkonkoma Hub. Any potential use of the Ronkonkoma Station by residents of the proposed development was estimated and analyzed.

- Evaluated the pedestrian and bicycle connectivity between the project site and the land uses and roadway facilities in the study area, including the existing pedestrian and bicycle accommodations. Where appropriate, measures to enhance connectivity and increase the use of alternative modes of transportation to and from the site was developed.

- An analysis was conducted to identify the impacts of the proposed project, if any, on school related transportation, including increases in the number of vehicles dropping off and picking up students at the school facilities, driving to and parking at the high school and middle school, and changes that may be required to school bus routes and fleet requirements. The analysis period includes school arrival and dismissal times.

- The traffic operation on NYS Route 27, Sunrise Highway in the vicinity of its interchange with the Southern State Parkway and Heckscher Spur of the Southern State Parkway was reviewed to identify the potential causes of the significant traffic congestion in this area during the weekday AM and PM peak hours.

- Prepared a Report containing text and graphics for submission to the Town of Islip, Suffolk County and the NYSDOT, as required.

EXISTING CONDITION

Roadway Conditions

This section of the report provides an overview of existing transportation conditions including roadway inventories, transit facilities, pedestrian amenities, existing traffic volumes, accident data, traffic signal timing plans and intersection geometries.

New York State Route 27 – Sunrise Highway is an east-west principal arterial under the jurisdiction of NYSDOT. In the vicinity of the proposed project, Sunrise Highway is a controlled access highway with continuous 2-lane service roads that parallel the 3-lane express roadway. The section of Sunrise Highway closest to the project site was last counted by NYSDOT in 2003 which recorded an Annual Average Daily Traffic (AADT) of 113,159 vehicles per day (vpd) and the current forecast AADT is shown as 108,939 vpd on the NYSDOT Traffic Data Viewer (NYSDOT TDV), an online interface with an interactive map containing state-wide traffic volume data. Approximately 2 miles west of the project site on Sunrise Highway, as the highway traverses a section of the Connetquot River State Park Preserve, is a bottleneck section known as the "Oakdale Merge". The environmentally sensitive nature of the adjacent wetlands imposes width constraints resulting in the 2-lane east and westbound service roads merging with the 3 express lanes of the highway. Delays are common on this section of Sunrise Highway during weekday AM and PM commuter peak periods. The Oakdale Merge begins around Exit 46 in the eastbound direction and around Exit 47A in the westbound direction. The AADT volumes for this section of roadway were 120,274 vpd (2003 count data: NYSDOT) and forecast to present day with an average of 115,750 vpd.

New York State Route 27 South Service Road (NYS Route 906C) is a one-way eastbound roadway under the jurisdiction of the NYSDOT. In the vicinity of the proposed project, the South Service Road has 2 travel lanes and provides controlled access to Sunrise Highway with traffic signals at intersections with local arterial and collector roadways and stop control on adjacent local roadways. Exclusive turn lanes are frequently provided at signalized intersections. The AADT on this roadway varies considerably by location- approaching Smithtown Avenue the AADT is 4,115 vpd, approaching Lakeland Avenue the AADT is 15,326 vpd and approaching Johnson Avenue the AADT is 9,515 vpd. This roadway is primarily fronted by commercial properties. The posted speed limit is 35 mph in the vicinity of the site. In the vicinity of the site the horizontal alignment of the roadway is slightly curving, and the vertical alignment is slightly rolling. The pavement and pavement markings on this roadway are in fair condition.

New York State Route 27 North Service Road (NYS Route 906D) is a one-way westbound roadway under the jurisdiction of the NYSDOT. In the vicinity of the proposed project, the North Service Road has 2 travel lanes and provides controlled access to Sunrise Highway with traffic signals at intersections with local arterial and collector roadways and stop control on adjacent local roadways. Exclusive or shared turn lanes are frequently provided at signalized intersections. The AADT on this roadway varies considerably by location. Approaching Johnson Avenue, the AADT is approximately 11,240 vpd, approaching Lakeland Avenue the AADT is approximately 15,3450 vpd and approaching Smithtown Avenue the AADT is approximately 4,980 vpd. This roadway is primarily fronted by commercial properties. The posted speed limit is 40 mph in the vicinity of the site. In the vicinity of the site the

horizontal alignment of the roadway is slightly curving, and the vertical alignment is slightly rolling. The pavement and pavement markings on this roadway are in fair condition.

Montauk Highway (CR 80) is an east-west minor arterial roadway under the jurisdiction of the (SCDPW) with an AADT of approximately 16,000 vpd. Montauk Highway is known as Main Street as it traverses downtown Sayville. The majority of Montauk highway in the study area provides one travel lane in each direction but the westerly section of Montauk highway near Brook Street provides one lane in each direction separated by a two-way left-turn lane. Exclusive turn lanes are provided at key locations and intersections. On-street parking is permitted in designated areas. This roadway is primarily fronted by commercial properties. The posted speed limit is 40 mph west of Munson Lane, 35 mph between Rollstone Avenue and Munson Lane and 30 mph east of Rollstone Avenue. The horizontal alignment of the roadway in downtown Sayville is straight, and the vertical alignment is slightly rolling. The pavement and pavement markings on this roadway are in fair condition.

Lakeland Avenue is a north-south roadway which exists as CR 93 north of the Sunrise Highway North Service Road and is under the jurisdiction of the Town of Islip to the south. North of Sunrise Highway, Lakeland Avenue is classified as a minor arterial roadway and has 2 travel lanes in each direction separated by a two-way left-turn lane with a posted speed limit of 50 mph. Exclusive turn lanes are provided at key locations and signalized intersections. The northern section, which has an AADT of 26,580 vpd (NYSDOT), provides access to NYS Route 454 and connectivity to the Long Island Expressway (LIE) as well as the Ronkonkoma Train Station. North of Sunrise Highway, Lakeland Avenue is primarily fronted by commercial uses with a few residential properties mixed in. South of Sunrise Highway, Lakeland Avenue is considered a collector roadway and provides connectivity between Sunrise Highway and downtown Sayville. There is one travel lane in each direction with a posted speed limit of 30 mph. South of the LIRR grade crossing, the roadway becomes known as Railroad Avenue. On-street parking is prohibited on Lakeland Avenue but is permitted in designated areas on Railroad Avenue. The southern portion of Lakeland Avenue has an AADT of 18,290 vpd (N&P data) and the section of Railroad Avenue has an AADT of 13,285 vpd (N&P data). In the vicinity of the site the horizontal alignment of the roadway is straight, and the vertical alignment is flat. The pavement and pavement markings on this roadway are in good condition.

Terry Road/Tariff Street is a local collector roadway that provides connectivity between the South Service Road and Lakeland Avenue. The section west of Durham Road is known as Terry Road and has a northwest/southeast orientation with an AADT of 2,323 vpd (N&P data). The section east of Durham Road is known as Tariff Street and has an east/west orientation with an AADT of 3,718 vpd (NYSDOT). This roadway is fronted by residential properties and has a posted speed limit of 30 mph. It is striped with a full double yellow barrier line as well as white shoulder markings to form travel lanes that are approximately 12 feet in width. Dedicated bike lanes are not provided. Generally speaking, the shoulder area is of varying width, but narrows and does not provide space for on-street parking. However, there are some sections with a wider shoulder area that can accommodate vehicles. The roadway is primarily without curb or sidewalk, but these features may be present intermittently. There is all-way stop control present at two intersections and traffic signals are present at Island Boulevard/Smithtown Avenue as well as the Lakeland Avenue intersections, which are the western and eastern limits of the roadway,

respectively. In the vicinity of the site the horizontal alignment of the roadway is straight, and the vertical alignment is flat. The pavement and pavement markings on this roadway are in fair condition.

Bohemia Parkway is a north/south local roadway that provides connectivity between the South Service Road and Terry Road. Bohemia Parkway extends south from the South Service Road for approximately 0.9 miles with the southern terminus at Mobile Street. The west side of the roadway, north of Terry Road, is fronted by residential properties and the opposite side is fronted by the project site. South of Terry Road, both sides of Bohemia Parkway are fronted by residential properties. The pavement width is approximately 28 feet in width and pavement markings are not present. There is curb and sidewalk provided on the west side of the roadway, north of Terry Road, with no sidewalk and sporadic curb south of Terry Road. No parking restrictions are posted, and the speed limit is 30 mph. In the vicinity of the site the horizontal alignment of the roadway is straight, and the vertical alignment is flat. The pavement and pavement markings on this roadway are in fair condition.

Sterling Place is a local northeast/southwest roadway that extends east from Terry Road for approximately 450 feet with its eastern terminus at Carrie Avenue. The south side of Sterling Place is fronted by residential properties and the north side is fronted by the project site. There are no pavement markings present and the roadway is approximately 25 feet wide. Curb or railroad tie front the properties on the south side of the roadway only. The posted speed limit is 30 mph. The horizontal alignment of the roadway is straight, and the vertical alignment is slightly rolling. The pavement and pavement markings on this roadway are good condition.

Carrie Avenue is a north/south local dead-end roadway, approximately 32 feet wide, that extends north from Tariff Street for approximately 2,000 feet. The south side of the roadway is fronted by residential properties and the north side of the roadway is fronted by the project site. Pavement markings and sidewalks are not present, but curb is provided on both sides of the roadway. No parking restrictions are posted, and the speed limit is 30 mph. The horizontal alignment of the roadway is straight, and the vertical alignment is flat. The pavement and pavement markings on this roadway are in good condition.

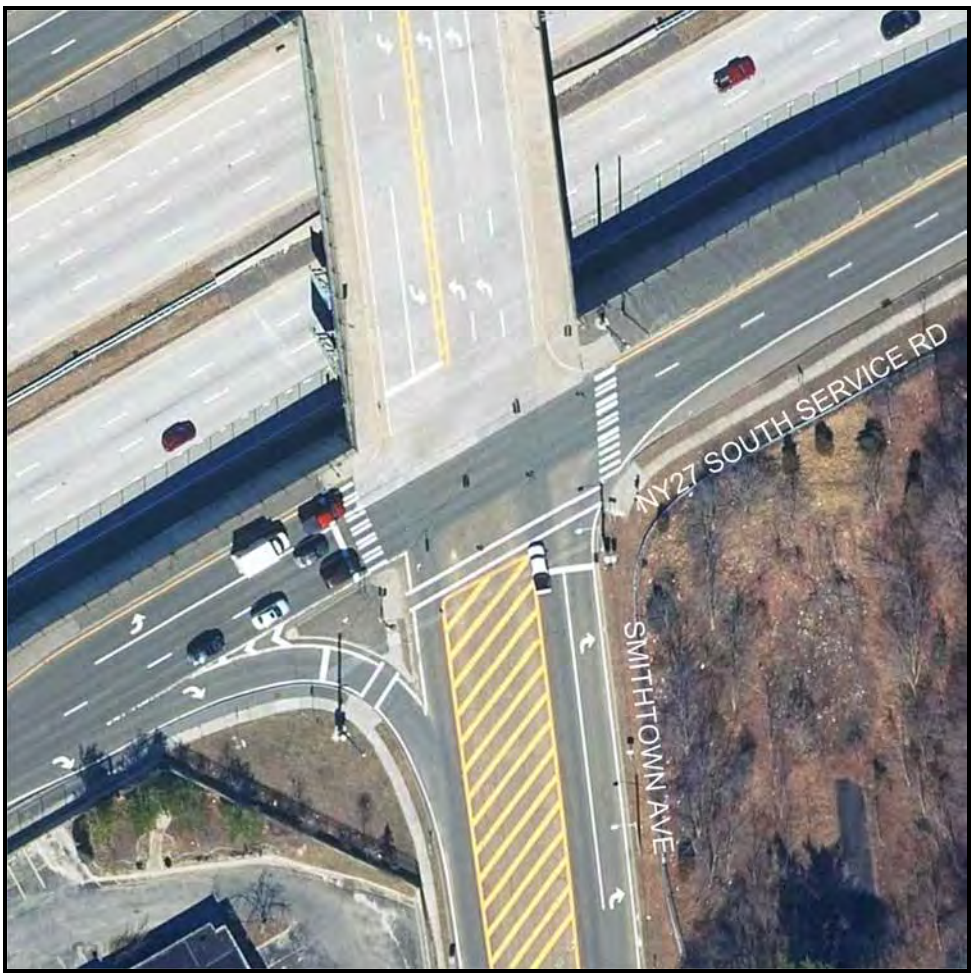
Chester Road is a north/south local roadway, approximately 34 feet wide, that extends north from Tariff Street for approximately 0.8 miles and there is a short, northern east/west section approximately 200' long, which provides connectivity to Lakeland Avenue. The southern and northern limits of Chester Road are controlled by stop signs but there is a traffic signal detection loop present on the eastbound approach at Lakeland Avenue, which operates on a delay that cycles the signal at Gibbons Court to provide gaps on the main line during peak periods. Pavement markings or sidewalks are not present, but curb is provided on both sides of the roadway. No parking restrictions are posted, and the speed limit is 30 mph. The horizontal alignment of the roadway is straight, and the vertical alignment is flat. The pavement and pavement markings on this roadway are in fair condition.

Following are descriptions of each study intersection, summarizing lane configuration, traffic control, pedestrian accommodations, and other features. A more detailed summary of the study intersections is contained in **Appendix A.**

Intersection	Approach	Lane Designation*	Traffic Control
Smithtown Avenue at NYS Route 27 North Service Road	WB	L-2T-R	3-Phase Traffic Signal
	NB	2L-T	
	SB	T-R	

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

The intersection of Smithtown Avenue and NYS Route 27 North Service Road is controlled by a 3-phase traffic signal under the jurisdiction of the NYSDOT. The signal operates with a westbound phase for the North Service Road. Next, a northbound/southbound phase for Smithtown Avenue is provided. The final phase is an exclusive northbound lagging left-turn/through phase for Smithtown Avenue. Right-turns on red are permitted from Smithtown Avenue and from the North Service Road. Curbing is present on both roadways. This location provides crosswalks on the east, west and north legs with supporting pedestrian pushbuttons, pedestrian signals with countdown timers. Sidewalks are present on the north side of NYS Route 27 South Service Road and on Smithtown Avenue south of the intersection. There is a Suffolk Transit bus stop nearby on Smithtown Avenue servicing Route S57. On-street parking is not permitted in the vicinity of this intersection.



Intersection	Approach	Lane Designation*	Traffic Control
Smithtown Avenue at NYS Route 27 South Service Road	EB	L-2T-R	3-Phase Traffic Signal
	NB	T-R	
	SB	L-T	

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

The intersection of Smithtown Avenue and NYS Route 27 South Service Road is controlled by a 3-phase traffic signal under the jurisdiction of the NYSDOT. The signal operates with an eastbound phase for the South Service Road. Next, a leading southbound left-turn/through phase is provided. The final phase is the northbound/southbound phase for Smithtown Avenue. Right-turns on red are permitted from Smithtown Avenue and the South Service Road. Curbing is present on both roadways. This location provides crosswalks on the east, west and south legs with supporting pedestrian pushbuttons and pedestrian signals with countdown timers. Sidewalks are present on the south side of NYS Route 27 South Service Road, on both sides of Smithtown Avenue north of the intersection and on the west side of Smithtown Avenue south of the intersection. On-street parking is not permitted in the vicinity of this intersection.

Intersection	Approach	Lane Designation*	Traffic Control
Lakeland Avenue at NYS Route 27 North Service Road	WB	L-2T-R	3-Phase Traffic Signal
	NB	2L-2T	
	SB	T-TR-R	

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

The intersection of Lakeland Avenue and NYS Route 27 North Service Road is controlled by a 3-phase traffic signal under the jurisdiction of the NYSDOT. The signal operates with a westbound phase for the North Service Road. Next, a leading northbound left-turn/through phase is provided for Lakeland Avenue. The final phase is the northbound/southbound phase for Lakeland Avenue. Right-turns on red are prohibited from southbound Lakeland Avenue but are permitted westbound for the North Service Road. Curbing is present on both roadways. This location provides crosswalks on the west and south legs with supporting pedestrian pushbuttons and pedestrian signals with countdown timers. Sidewalks are present on the west side of Lakeland Avenue and on the north side of NYS Route 27 North Service Road. There are no bike lanes or public transit facilities nearby. On-street parking is not permitted in the vicinity of this intersection.

Intersection	Approach	Lane Designation*	Traffic Control
Lakeland Avenue at NYS Route 27 South Service Road	EB	L-LT-T-R	3-Phase Traffic Signal
	NB	2T-R	
	SB	2L-2T	

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

The intersection of Lakeland Avenue and NYS Route 27 South Service Road is controlled by a 3-phase traffic signal under the jurisdiction of the NYSDOT. The signal operates with an eastbound phase for the South Service Road. Next, a leading southbound left-turn/through phase is provided for Lakeland Avenue. The final phase is the northbound/southbound phase for Lakeland Avenue. Right-turns on red are permitted from Lakeland Avenue and the South Service Road. Curbing is present on both roadways. This location provides, crosswalks on the west and north legs with supporting pedestrian pushbuttons and pedestrian signals with countdown timers. Sidewalks are present on the south sides of NYS Route 27 South Service Road west of the intersection. Lakeland Avenue provides sidewalks on the west side of the roadway north of the intersection and on both sides of the roadway south of the intersection. On-street parking is not permitted in the vicinity of this intersection.

Intersection	Approach	Lane Designation*	Traffic Control
Johnson Avenue at NYS Route 27 North Service Road	WB	L-2T-R	3-Phase Traffic Signal
	NB	2L-2T	
	SB	2T-R	

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

The intersection of Johnson Avenue and NYS Route 27 North Service Road is controlled by a 3-phase traffic signal under the jurisdiction of the NYSDOT. The signal operates with a westbound phase for the North Service Road. Next, a leading northbound left-turn/through phase is provided for Johnson Avenue. The final phase is the northbound/southbound phase for Johnson Avenue. Right-turns on red are prohibited from both Johnson Avenue and North Service Road. Curbing is present on both roadways. This location provides crosswalks on the east, west and north legs with supporting pedestrian pushbuttons and pedestrian signals with countdown timers. Sidewalks are present on the north side of NYS Route 27 North Service Road and on both sides of Johnson Avenue. Designated bike lanes are not provided. The Suffolk County Transit bus Route S59 travels along Johnson Avenue and stops at the Sayville Plaza located on the northwest corner. On-street parking is not permitted in the vicinity of this intersection.

Intersection	Approach	Lane Designation*	Traffic Control
Johnson Avenue at NYS Route 27 South Service Road	EB	L-LT-T-R	3-Phase Traffic Signal
	NB	2T-R	
	SB	2L-2T	

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

The intersection of Johnson Avenue and NYS Route 27 South Service Road is controlled by a 3-phase traffic signal under the jurisdiction of the NYSDOT. The signal operates with an eastbound phase for the South Service Road. Next, a leading southbound left-turn/through phase is provided for Johnson Avenue. The final phase is the northbound/southbound phase for Johnson Avenue. Right-turns on red are prohibited from both Johnson Avenue and South Service Road. Curbing is present on both roadways. This location provides crosswalks on the east, west and south legs with supporting pedestrian pushbuttons and pedestrian signals with countdown timers. Sidewalks are present on both sides of Johnson Avenue north of the intersection and on the east side of the roadway south of the intersection. Designated bike lanes are not provided. The Suffolk County Transit bus Route S59 travels along Johnson Avenue. On-street parking is not permitted in the vicinity of this intersection.

Intersection	Approach	Lane Designation*	Traffic Control
11th Street at Lakeland Avenue	EB	LR	Stop Control- EB 11th St
	NB	L-T	
	SB	TR	

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

The intersection of 11th Street and Lakeland Avenue is an unsignalized intersection with stop-control on the eastbound 11th Street approach. This location is under the jurisdiction of the Town of Islip. Sidewalk is present on the east and west side of Lakeland Avenue but ends on the west side roughly 100 feet south of 11th Street. Curbing is present on Lakeland Avenue but not on 11th Street. Crosswalks are not present. There are no bike lanes or public transit facilities nearby. On-street parking is prohibited along Lakeland Avenue.

Intersection	Approach	Lane Designation*	Traffic Control
Gibbons Court at Lakeland Avenue	WB	L-R	3-Phase Traffic Signal
	NB	TR	
	SB	L-T	

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

The intersection of Gibbons Court and Lakeland Avenue is controlled by a 3-phase traffic signal under the jurisdiction of the Town of Islip. The signal operates with a leading southbound left-turn/through phase for Lakeland Avenue. Next, a northbound/southbound phase for Lakeland Avenue is provided. The final phase is the westbound phase for Gibbons Court. Right-turns on red are permitted from Lakeland Avenue and Gibbons Court. Curbing is present on both roadways. Sidewalk is present on the east side of Lakeland Avenue and on the south side of Adams Way. A crosswalk is provided on the southbound approach with supporting pedestrian pushbuttons and pedestrian signals with countdown timers. There are no bike lanes or public transit facilities nearby. On-street parking is prohibited along Lakeland Avenue.

Intersection	Approach	Lane Designation*	Traffic Control
Chester Road at Lakeland Avenue	EB	LR	Stop Control- EB Chester Road
	NB	LT	
	SB	TR	

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

The intersection of Chester Road and Lakeland Avenue is an unsignalized intersection with stop-control on the eastbound Chester Road approach. This location is under the jurisdiction of the Town of Islip. Curbing is present only on Lakeland Avenue. Sidewalk is present on the east and west side of Lakeland Avenue but ends on the east side roughly 100 feet south of Chester Road. Crosswalks are not present. There are no bike lanes or public transit facilities nearby. On-street parking is prohibited along Lakeland Avenue. There is a traffic signal loop present on the eastbound approach of Chester Road. This loop detects a car on the eastbound approach which results in the traffic signal, located at Lakeland Avenue and Gibbons Court, providing a red signal on Lakeland Avenue to allow vehicles easier egress from Chester Road. It is important to realize that this phenomenon cannot be replicated in the Synchro 10 software utilized in the capacity analysis and therefore the associated LOS and delay for this location is worse than actual field conditions.

Intersection	Approach	Lane Designation*	Traffic Control
Tariff Street/Johnson Avenue at Lakeland Avenue	EB	L-TR	3-Phase Traffic Signal
	WB	LTR	
	NB	LT-R	
	SB	LTR	

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

The intersection of Tariff Street/Johnson Avenue and Lakeland Avenue is controlled by a 3-phase traffic signal under the jurisdiction of the Town of Islip. The signal operates with a northbound/southbound phase for Lakeland Avenue. Next, a split eastbound phase is provided for Tariff Street. The final phase is a split westbound phase for Johnson Avenue. Right-turns on red are prohibited on all approaches. Curbing and sidewalk are present on all roadways. Crosswalks are provided on the southbound and eastbound approaches and pedestrian pushbuttons and pedestrian signals with countdown timers for crossing the southbound approach of Lakeland Avenue. Dedicated bike lanes are not provided on any of the roadways. Suffolk Transit bus Route S57 travels on Tariff Street and Route S59 travels on Johnson Avenue.

Intersection	Approach	Lane Designation*	Traffic Control
Manton Street at Lakeland Avenue	EB	LTR	2-Phase Traffic Signal
	WB	LTR	
	NB	LTR	
	SB	LTR	

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

The intersection of Manton Street and Lakeland Avenue is controlled by a 2-phase traffic signal under the jurisdiction of the Town of Islip. The signal operates first with a northbound/southbound phase for Lakeland Avenue followed by an eastbound/westbound phase for Manton Street. Sidewalk is present on both sides of Lakeland Avenue and on the northern side of Manton Street east of Lakeland Avenue. Curb is present on the west side of Lakeland Avenue and the north side of Manton Street east of the intersection. Crosswalks are provided on all approaches as well as pedestrian pushbuttons and pedestrian signals with countdown timers. Suffolk Transit bus Route S57 and S59 travel on this section of Lakeland Avenue. Dedicated bike lanes are not provided. On-street parking is prohibited along Lakeland Avenue.

Intersection	Approach	Lane Designation*	Traffic Control
Henry Street/LIRR Parking Lot at Lakeland Avenue	EB	LTR	Stop Control- EB/WB LIRR Lot/Henry St
	WB	LTR	
	NB	LTR	
	SB	LTR	

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

The intersection of Henry Street/LIRR Parking Lot and Lakeland Avenue is an unsignalized intersection with stop-control on the eastbound LIRR Parking Lot approach and the westbound Henry Street approach. This location is under the jurisdiction of the Town of Islip. Sidewalk is present on the east and west side of Lakeland Avenue and on the north side of Henry Street east of the intersection. Curb is provided on the west side of Lakeland Avenue north of the intersection and on both sides of Lakeland Ave south of the intersection. Curb is present on both sides of Henry Street but only in close proximity to Lakeland Avenue. Crosswalks are not present, and dedicated bike lanes are not provided. Suffolk Transit bus Route S57 and S59 travel on this section of Lakeland Avenue. On-street parking is prohibited along Lakeland Avenue.

Intersection	Approach	Lane Designation*	Traffic Control
Depot Street at Railroad Avenue	EB	L-R	Stop Control- EB Depot St
	NB	LT	
	SB	TR	

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

The intersection of Depot Street and Railroad Avenue is an unsignalized intersection with stop-control on the eastbound Depot Street approach. This location is under the jurisdiction of the Town of Islip. Curb is present on both roadways. Sidewalk is present on both sides of Railroad Avenue and Depot Street. Crosswalks are not present. On-street parking is prohibited along Depot Street and the west side of Railroad Avenue. On-street parking is limited to 15 minutes on the east side of Railroad Avenue. Suffolk Transit bus Route S57 and S59 travel on this section of Lakeland Avenue. Dedicated bike lanes are not provided. The northbound approach of this location was observed, at times, operating as a left-turn lane and through lane.

Intersection	Approach	Lane Designation*	Traffic Control
Hiddink Street at Railroad Avenue	WB	LR	Stop Control- WB Hiddink St
	NB	TR	
	SB	LT	

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

The intersection of Hiddink Street and Railroad Avenue is an unsignalized intersection with stop-control on the westbound Hiddink Street approach. This location is under the jurisdiction of the Town of Islip. Curb is present on both sides of Railroad Avenue but only on the north side of Hiddink Street. Sidewalk is present on both sides of Railroad Avenue and on the north side of Hiddink Street. Crosswalks are not present. On-street parking is limited to 15 minutes on the east side of Railroad Avenue and 1 hour on the north side of Hiddink Street. Gridlock box pavement markings are installed in the northbound through lane at this location and can be affected by queuing caused by the LIRR grade crossing to the north. Suffolk Transit bus Route S57 and S59 travel on this section of Railroad Avenue. Dedicated bike lanes are not provided.

Intersection	Approach	Lane Designation*	Traffic Control
Center Street at Railroad Avenue	EB	L-R	Stop Control- EB Center St
	NB	LT	
	SB	TR	

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

The intersection of Center Street and Railroad Avenue is an unsignalized intersection with stop-control on the eastbound Center Street approach. This location is under the jurisdiction of the Town of Islip. Curb and sidewalk are present on both sides of Railroad Avenue and Center Street. A crosswalk is present on the northbound approach of Railroad Avenue. On-street parking is prohibited along the south side of Center Street and limited to 2 hours on the north side. Parking on the west side of Railroad Avenue is limited to 2 hours north of Center Street and 1 hour south of Center Street. Parking is prohibited on the east side of Railroad Avenue. Suffolk Transit bus Route S57 and S59 travel on this section of Railroad Avenue. Dedicated bike lanes are not provided.

Intersection	Approach	Lane Designation*	Traffic Control
Brook Street at Montauk Highway	WB	L-R	3-Phase Traffic Signal
	NB	TR	
	SB	LT	

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

The intersection of Brook Street and Montauk Highway is a signalized intersection controlled by a 3-phase traffic signal under the jurisdiction of SCDPW. The signal operates with an exclusive southbound left-turn phase for Montauk Highway with a simultaneous right-turn overlap for Brook Street. Next, a northbound/southbound phase for Montauk Highway. The final phase is for westbound Brook Street, left and right turns. Right turns on red are prohibited from Brook Street. Curb and sidewalk are present on the east side of Montauk Highway and on the south side of Brook Street. Crosswalks and pedestrian accommodations are not present. On-street parking is prohibited along Montauk Highway and on the north side of Brook Street in the vicinity of the intersection. Suffolk Transit S40 bus route travels along this section of Montauk Highway. Dedicated bike lanes are not provided.

Intersection	Approach	Lane Designation*	Traffic Control
Cherry Avenue at Montauk Highway	EB	LT	2-Phase Traffic Signal
	WB	TR	
	SB	LR	

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

The intersection of Cherry Avenue and Montauk Highway is a signalized intersection controlled by a 3-phase traffic signal under the jurisdiction of SCDPW. The signal operates with an eastbound/westbound phase for Montauk Highway and a southbound phase for Cherry Avenue. This signal also functions as an emergency signal for the West Sayville Fire Department firehouse located opposite Cherry Avenue. Right turns on red are prohibited for westbound Montauk Highway traffic. Curb and sidewalk are present on both sides of each roadway. Crosswalks are present on the southbound and eastbound approaches. Pedestrian pushbuttons and pedestrian signals are only provided for crossing the eastbound Montauk Highway approach. Dedicated bike lanes are provided. On-street parking is prohibited along the south side of Montauk Highway and on the east side of Cherry Avenue near the intersection. Suffolk Transit S40 bus route travels along this section of Montauk Highway.

Intersection	Approach	Lane Designation*	Traffic Control
Greeley Avenue at Montauk Highway	EB	LT	Stop Control- SB Greeley Ave
	WB	TR	
	SB	R	

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

The intersection of Greeley Avenue and Montauk Highway is an unsignalized intersection with stop control on the southbound Greeley Avenue approach. Montauk Highway is under the jurisdiction of SCDPW and Greeley Avenue is under Town of Islip jurisdiction. Only southbound right-turns are permitted from Greeley Avenue. Curb and sidewalk are present on both sides of each roadway. Crosswalks are not present at this location and dedicated bike lanes are not provided. On-street parking is prohibited along the west side of Greeley Avenue. On-street parking along Montauk Highway is limited to 1 hour in the vicinity of the intersection. Suffolk Transit S40 bus route travels along this section of Montauk Highway.

Intersection	Approach	Lane Designation*	Traffic Control
Greene Avenue at Montauk Highway	EB	LTR	2-Phase Traffic Signal
	WB	LT-R	
	NB	L-TR	
	SB	LTR	

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

The intersection of Greene Avenue and Montauk Highway is controlled by a 2-phase traffic signal under the jurisdiction of SCDPW. The signal operates first with an eastbound/westbound phase for Montauk Highway followed by a northbound/southbound phase for Greene Avenue. Right-turns on red are only permitted from the eastbound Montauk Highway approach. Curb and sidewalk are present on all roadways. Crosswalks are provided on all approaches but pedestrian pushbuttons and pedestrian signals with countdown timers are only provided on the eastbound and westbound approaches for crossing Montauk Highway. Suffolk Transit bus Route S40 travels on this section of Montauk Highway. Dedicated bike lanes are not provided. On-street parking is only permitted in designated areas along Montauk Highway and prohibited on Greene Avenue.

Intersection	Approach	Lane Designation*	Traffic Control
Railroad Avenue/Gillette Avenue at Montauk Highway	EB	L-TR	4-Phase Traffic Signal
	WB	L-T-R	
	NB	L-TR	
	SB	L-TR	

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

The intersection of Railroad Avenue/Gillette Avenue and Montauk Highway is controlled by a 4-phase traffic signal under the jurisdiction of SCDPW. The signal operates, first, with a leading eastbound left-turn/through phase for Montauk Highway. This is followed by an eastbound/westbound phase for Montauk Highway. Next, a southbound left-turn/through phase for Railroad Avenue with a simultaneous westbound right-turn overlap for Montauk Highway is provided. Lastly, the northbound/southbound phase for Railroad Avenue/Gillette Avenue. Right-turns on red are prohibited on all approaches. Curb and sidewalk are present on all roadways. Crosswalks are provided on all approaches as well as pedestrian pushbuttons and pedestrian signals with countdown timers. Suffolk Transit bus Route S40 travels on this section of Montauk Highway. Dedicated bike lanes are not provided. On-street parking is only permitted in designated areas along Montauk Highway and prohibited on Railroad Avenue and Gillette Avenue near the intersection.

Intersection	Approach	Lane Designation*	Traffic Control
Lincoln Avenue/Shopping Center Access at Montauk Highway	EB	L-TR	4-Phase Traffic Signal
	WB	L-TR	
	NB	LTR	
	SB	LTR	

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

The intersection of Lincoln Avenue/Shopping Center Access and Montauk Highway is controlled by a 4-phase traffic signal under the jurisdiction of SCDPW. This intersection is coordinated with the intersection of Foster Avenue/Shopping Center at Montauk Highway, to the east, and both locations are managed by the same traffic signal controller. There are 4 distinct phases- first, the signal at Foster Avenue provides a leading westbound left-turn/through phase for Montauk Highway that runs simultaneously with the westbound phase at Lincoln Avenue. Next, both locations run an eastbound/westbound phase for Montauk Highway. The third phase runs northbound/southbound traffic at Lincoln Avenue while simultaneously running a lagging eastbound phase for Montauk Highway at Foster Avenue. Lastly, a lagging westbound phase for Montauk Highway is provided at Lincoln Avenue that runs simultaneously with the northbound/southbound phase at Foster Avenue. Right-turns on red are permitted on all approaches. Curb and sidewalk are present on all roadways. Crosswalks are provided on the westbound and southbound approaches but pedestrian pushbuttons and pedestrian signals with countdown timers are only provided for crossing the westbound Montauk Highway approach. Dedicated bike lanes are not provided. On-street parking is prohibited on all roadways in the vicinity of the intersection. Suffolk Transit bus Route S40 travels on this section of Montauk Highway and has eastbound/westbound stops in close proximity to this intersection.

Intersection	Approach	Lane Designation*	Traffic Control
Foster Avenue/Shopping Center Access at Montauk Highway	EB	L-T-R	4-Phase Traffic Signal
	WB	L-TR	
	NB	LT-R	
	SB	LTR	

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

The intersection of Foster Avenue/Shopping Center Access and Montauk Highway is controlled by a 4-phase traffic signal under the jurisdiction of SCDPW. This intersection is coordinated with the intersection of Lincoln Avenue/Shopping Center at Montauk Highway, to the west, and both locations are managed by the same traffic signal controller. There are 4 distinct phases- first, the signal at Foster Avenue provides a leading westbound left-turn/through phase for Montauk Highway that runs simultaneously with the westbound phase at Lincoln Avenue. Next, both locations run an eastbound/westbound phase for Montauk Highway. The third phase runs northbound/southbound traffic at Lincoln Avenue while simultaneously running a lagging eastbound phase for Montauk Highway at Foster Avenue. Lastly, a lagging westbound phase for Montauk Highway is provided at Lincoln Avenue that runs simultaneously with the northbound/southbound phase at Foster Avenue. Right-turns on red are prohibited from the westbound Montauk Highway approach. Curb and sidewalk are present on all roadways. A crosswalk is provided on the eastbound Montauk Highway approach with pedestrian pushbuttons and pedestrian signals with countdown provided. Dedicated bike lanes are not provided. On-street parking is prohibited on all roadways in the vicinity of the intersection. Suffolk Transit bus Route S40 travels on this section of Montauk Highway and has eastbound/westbound stops in close proximity to this intersection.

Intersection	Approach	Lane Designation*	Traffic Control
Hiddink Street/Hanson Place at Montauk Highway	EB	LTR	2-Phase Traffic Signal
	WB	LTR	
	NB	L-TR	
	SB	L-TR	

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

The intersection of Hiddink Street/Hanson Place and Montauk Highway is controlled by a 2-phase traffic signal under the jurisdiction of SCDPW. The signal operates, first, with a leading northbound/southbound through phase for Montauk Highway. This is followed by eastbound/westbound phase for Hiddink Street/Hanson Place. Right-turns on red are prohibited from the southbound Montauk Highway approach. Curb is present on Montauk Highway and Hanson Place. Sidewalk is present on the north sides of Hiddink Street and Hanson Place. On Montauk Highway, there is sidewalk on both sides of the road south of the intersection and only, on the west side of the roadway, north of the intersection. Crosswalks are provided on the eastbound and southbound approaches as well as pedestrian pushbuttons and pedestrian signals with countdown timers. Dedicated bike lanes are not provided. Suffolk Transit bus Route S40 travels on this section of Montauk Highway. On-street parking is prohibited near the intersection.

Intersection	Approach	Lane Designation*	Traffic Control
	EB	LTR	
Smithtown Avenue at	WB	LTR	
Island Boulevard at	NWB	LTR	3-Phase Traffic Signal
Terry Road	NB	LTR	
	SB	L-TR	

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

The intersection of Smithtown Avenue and Island Boulevard and Terry Road is controlled by a 2-phase traffic signal under the jurisdiction of the Town of Islip. The signal operates, first, with a northwest bound/southbound through phase for Smithtown Avenue and Terry Road. This is followed by eastbound/westbound phase for Island Boulevard. Lastly is an exclusive northbound phase for Smithtown Avenue. Right-turns on red are prohibited from all approaches. Curb is present on both sides of Island Boulevard west of the intersection and on the west side of Smithtown Avenue north of the intersection. Sidewalk is present, on the west side of Smithtown Avenue, north of the intersection and on the north side of Island Boulevard west of the intersection. A crosswalk and pedestrian pushbuttons are provided for crossing the southbound Smithtown Avenue approach. Dedicated bike lanes are not provided. Suffolk Transit bus Route S57 travels on this section of Smithtown Avenue and Terry Road. On-street parking is prohibited near the intersection.

Intersection	Approach	Lane Designation*	Traffic Control
Bohemia Parkway at Terry Road	EB	LTR	Stop Control- NB/SB Bohemia Pkwy
	WB	LTR	
	NB	LTR	
	SB	LTR	

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

The intersection of Bohemia Parkway at Terry Road is an unsignalized intersection with stop control on the northbound and southbound Bohemia Parkway approaches and is under the jurisdiction of the Town of Islip. The north leg of Bohemia Parkway forms two intersections with Terry Road. The western north leg is for southbound traffic only and permits left and right turns onto Terry Road. The eastern side of the north leg is for northbound traffic only and permits left and right turns from Terry Road as well as northbound through traffic from the southern leg of Bohemia Parkway. Curb is present on both sides of Terry Road west of the intersection and on the west side of Bohemia Parkway north of the intersection. Sidewalk is present on the south side of Terry Road west of the intersection. Crosswalks are not present at this location and dedicated bike lanes are not provided. On-street parking is prohibited along Terry Road but permitted on Bohemia Parkway. Suffolk Transit S57 bus route travels along this section of Terry Road.

Intersection	Approach	Lane Designation*	Traffic Control
St Johns Street at Terry Road	EB	TR	Stop Control- NB St Johns St
	WB	LT	
	NB	LR	

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

The intersection of St Johns Street at Terry Road is an unsignalized intersection with stop control on the northbound St Johns Street approach and is under the jurisdiction of the Town of Islip. Curb is present on both sides of St Johns Street and the south side of Terry Road. Sidewalk is present on the east side of St Johns Street at the intersection and on both sides of the road a little further south. Sidewalk is not present on Terry Road. Crosswalks are not present at this location and dedicated bike lanes are not provided. On-street parking is prohibited along Terry Road but permitted on St Johns Street. Suffolk Transit S57 bus route travels along this section of Terry Road.

Intersection	Approach	Lane Designation*	Traffic Control
Sterling Place at Terry Road	EB	LT	All-Way Stop Control
	WB	TR	
	SB	LR	

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

The intersection of Sterling Place at Terry Road is an unsignalized intersection with all-way stop control (all approaches) and is under the jurisdiction of the Town of Islip. Curb is present on the south side of Terry Road on the north side of Terry Road east of the intersection as well as on the east side of Sterling Place. Sidewalk, crosswalks and dedicated bike lanes are not provided. On-street parking is prohibited along Terry Road but permitted on Sterling Place. Suffolk Transit S57 bus route travels along this section of Terry Road.

Intersection	Approach	Lane Designation*	Traffic Control
Carrie Avenue at Terry Road	EB	LT	Stop Control- SB Carrie Avenue
	WB	TR	
	SB	LR	

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

The intersection of Carrie Avenue at Terry Road is an unsignalized intersection with stop control on the southbound approach of Carrie Avenue and is under the jurisdiction of the Town of Islip. Curb is only present on Carrie Avenue. Sidewalk, crosswalks and dedicated bike lanes are not provided. On-street parking is prohibited along Terry Road but permitted on Carrie Avenue. Suffolk Transit S57 bus route travels along this section of Terry Road.

Intersection	Approach	Lane Designation*	Traffic Control
Cherry Avenue at Tariff Street	EB	TR	All-Way Stop Control
	WB	LT	
	NB	LR	

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

The intersection of Cherry Avenue at Tariff Street is an unsignalized intersection with all-way stop control (all approaches) and is under the jurisdiction of the Town of Islip. Curb and sidewalk are present on the south side of Tariff Street west of the intersection and on the west side of Cherry Avenue. Crosswalks and dedicated bike lanes are not provided, and on-street parking is prohibited along both roadways. Suffolk Transit S57 bus Route travels along this section of Tariff Road.

Intersection	Approach	Lane Designation*	Traffic Control
Chester Road at Tariff Street	EB	LT	Stop Control- SB Chester Road
	WB	TR	
	SB	LR	

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

The intersection of Chester Road at Tariff Street is an unsignalized intersection with stop control on the southbound approach of Chester Road and is under the jurisdiction of the Town of Islip. Curb, sidewalk, crosswalks and dedicated bike lanes are not provided. On-street parking is prohibited along Tariff Street but permitted on Chester Road. Suffolk Transit S57 bus Route travels along this section of Tariff Street.

Intersection	Approach	Lane Designation*	Traffic Control
Bohemia Parkway at	EB	TR	Stop Control- NB Bohemia Parkway
NYS Route 27 South Service Road	NB	R	

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

The intersection of NYS Route 27 South Service Road at Bohemia Parkway is an unsignalized intersection with stop control on the northbound Bohemia Parkway approach. Curb is present on all roadways and sidewalk is provided on both sides of Bohemia Parkway and on the south side of NYS Route 27 South Service Road. Crosswalks are not present at this location and dedicated bike lanes are not provided and no public transit stops are nearby. The nearby area is void of any posted parking restrictions.

Intersection	Approach	Lane Designation*	Traffic Control
11th Street at Bohemia Parkway	WB	LR	Stop Control- WB 11th Street
	NB	TR	
	SB	LT	

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

The intersection of 11th Street at Bohemia Parkway is an unsignalized intersection with stop control on the westbound approach of 11th Street and is under the jurisdiction of the Town of Islip. Curb is present on both side of Bohemia Parkway north of 11th Street and only on the west side south of 11th Street. No curb is present on 11th Street. Sidewalk is provided on both sides of Bohemia Parkway north of 11th Street but does not exist to the south. Sidewalk is provided on the north side of 11th Street. The nearby area is void of any posted parking restrictions. Crosswalks are not present, and bike lanes are not provided on either roadway. Public transit stops are not present.

Intersection	Approach	Lane Designation*	Traffic Control
Marion Street at Carrie Avenue	WB	LR	Stop Control- WB Marion Street
	NB	TR	
	SB	LT	

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

The intersection of Marion Street at Carrie Avenue is an unsignalized intersection with stop control on the westbound approach of Marion Street and is under the jurisdiction of the Town of Islip. Curb is present on both sides of Carrie Avenue and Marion Street, but sidewalks are not provided. Crosswalks and dedicated bike lanes are not provided. On-street parking is permitted on both roadways. There are no public transit stops nearby.

Intersection	Approach	Lane Designation*	Traffic Control
Sterling Place at Carrie Avenue	EB	LR	Stop Control- EB Sterling Place
	NB	LT	
	SB	TR	

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

The intersection of Sterling Place at Carrie Avenue is an unsignalized intersection with stop control on the eastbound approach of Sterling Place and is under the jurisdiction of the Town of Islip. Curb is present on both sides of Carrie Avenue but only on the south side of Sterling Place. Sidewalk is provided nor are crosswalks or dedicated bike lanes. On-street parking is permitted on both roadways. There are no public transit stops nearby.

Intersection	Approach	Lane Designation*	Traffic Control
Brook Street at Cherry Avenue	EB	LTR	2-Phase Traffic Signal
	WB	LTR	
	NB	LTR	
	SB	LTR	

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

The intersection of Brook Street and Cherry Avenue is controlled by a 2-phase traffic signal under the jurisdiction of the Town of Islip. The signal operates first with a northbound/southbound phase for Cherry Avenue followed by an eastbound/westbound phase for Brook Street. Right-turns on red are prohibited on all approaches. Curb and sidewalk are present on both sides of the roadways. Crosswalks are provided on all approaches as well as pedestrian pushbuttons and pedestrian signals with countdown timers. A dedicated bike lane is provided for eastbound and westbound travel on the east leg of Brook Street. On-street parking is prohibited along Cherry Avenue and the west leg of Brook Street from 7am-3pm on school days. Parking is prohibited along the east leg of Brook Street from 8am-4pm. There are no public transit stops nearby. The Sayville High School is located on the southeast corner of this intersection with the majority of frontage along Brook Street which extends approximately 760 feet east of Cherry Avenue. The school has approximately 140 feet of frontage on Cherry Avenue.

Intersection	Approach	Lane Designation*	Traffic Control
Hiddink Street at Lincoln Avenue	EB	LTR	All-Way Stop Control
	WB	LTT	
	NB	LTR	
	SB	LTR	

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

The intersection of Hiddink Street at Lincoln Avenue is an unsignalized intersection with all-way stop control (all approaches) and is under the jurisdiction of the Town of Islip. Curb is not present on either roadway. Sidewalk is provided along the north side of Hiddink Street and on the west side of Lincoln Avenue, north of the intersection. Crosswalks and dedicated bike lanes are not provided, and there are no parking restrictions posted. There are no public transit stops nearby. There is an at-grade crossing for the LIRR approximately 165 feet north of Hiddink Street.

Public Transportation

Within the study area, public transit is provided primarily by Suffolk County Transit and the Long Island Railroad. The following discussions outline the exiting local bus and train service in the study area.

Bus

Suffolk County Transit (SCT) has three (3) bus lines (S40, S57 and S59) that service locations in and around the study area.

Route S40: This route runs between the Babylon Railroad and Patchogue Railroad Stations. Stops along this route include Good Samaritan Hospital, Islip Town Hall and South Brookhaven Health Center. The bus operates on Montauk Highway in downtown Sayville within approximately1.5 miles of the site. The bus operates approximately every half hour and runs from 5:30 am to 9:30 pm.

Route S57: This route runs between Main Street in Sayville and Smith Haven Mall in Lake Grove. Stops along this route include Terry Road and Tariff Street, in the vicinity of the site, Ronkonkoma LI MacArthur Airport and Ronkonkoma Railroad. The bus operates approximately every hour and runs from 7:00 am to 6:25 pm with limited service on Saturdays.

Route S59: This route runs between Main Street in Sayville and Smith Haven Mall in Lake Grove. Stops along this route include the intersection of Johnson Avenue at Tariff Street, in the vicinity of the site, and Ronkonkoma Railroad. The bus operates approximately every hour and runs from 7:00 am to 6:45 pm with limited service on Saturdays.

Rail

The Long Island Railroad (LIRR), a division of the Metropolitan Transit Authority (MTA), provides passenger rail service to Suffolk County, Nassau County, Queens, Brooklyn and Manhattan. Major hubs provide transfer to several public transit options. Suffolk/Nassau locations provide transfer to Long Island bus services, Queens/Brooklyn locations and provides transfer to the subway/city bus and Penn Station in Manhattan and transfers to New Jersey Transit and Amtrak.

The Sayville Stop of the Montauk Branch of the LIRR is located on Depot Street, approximately 1.5 miles from the site. This station is approximately 50 miles from Penn Station and travel times are about 90 minutes during peak commuting periods. During peak periods, trains generally leave every 25-50 minutes, with off-peak and weekend trains scheduled hourly.

The Ronkonkoma Stop of the Ronkonkoma Branch of the LIRR is located on Railroad Avenue, approximately 4.5 miles from the site. This station is approximately 50 miles from Penn Station and travel times are about 70 minutes during peak commuting periods. During peak periods, trains generally leave every 20-30 minutes, with off-peak and weekend trains scheduled hourly.

Traffic Volume and Speed Data

Automatic Traffic Recorder Volumes

Automatic Traffic Recorder (ATR) machines were installed for a period of one (1) standard full school week (from June 4th to June 10th , 2018) not preceding or succeeding a federal holiday or school closure and for one (1) week during the peak summer season (from July 9th to July 15th, 2018) at the following roadways within the study area to obtain operating speeds, hourly and daily (24 hour) volumes to verify the peak hours and to supplement the turning movement counts:

1) NYS Route 27 South Service Road between Smithtown Avenue and Lakeland Avenue
2) Lakeland Avenue between Gibbons Court and 11th Street
3) Johnson Avenue south of Sunrise Highway South Service Road
4) Smithtown Avenue between Sunrise Highway South Service Road and Terry Road
5) Johnson Avenue
6) Terry Road
7) Bohemia Parkway
8) 11th Street
9) Chester Road
10) Carrie Avenue
11) Railroad Avenue
12) Greene Avenue
13) Greeley Avenue
14) Cherry Avenue
15) Brook Street
16) Montauk Highway

The ATR count data was tabulated and summarized to identify the peak hours to be utilized in the processing of the turning movement counts. Based on the review of the ATR data, the School peak season turning movement counts were processed during the weekday AM (7-9am), weekday PM (3-6pm) and Saturday midday (11am-1pm) peak hours. The summer turning movement counts were processed during the weekday AM (8-11am), weekday PM (4-6pm), Friday PM (5-6pm) and Saturday midday (11am-1pm) peak hours. The ATR data and summaries are contained in **Appendix B.**

Speed Data

As requested in the Final Scope of the DEIS for the proposed project, speed studies were conducted on all the roadways, where ATR volumes were collected. The purpose of the speed analyses is to identify the existing operating speeds on the identified roadways and compare them to the posted speed limit. Existing operating speeds for each direction of travel were identified by establishing the 85th percentile speed for each direction of travel on the study roadways. These speeds were recorded using Automatic Traffic Recorder (ATR) machines for a period of one week for both the school peak and summer peak seasons. The following table presents a summary of the speed data.

TABLE 1: SPEED DATA DURING SCHOOL PEAK SEASON

Roadway	Speed Limit (mph)	85th Percentile Speed (mph)	
		NB/EB	SB/WB
NYS Route 27 South Service Road between Smithtown Avenue and Lakeland Avenue	35	48	
Lakeland Avenue between Gibbons Court and 11th Street	30	37	40
Smithtown Avenue between Sunrise Highway South Service Road and Terry Road	30	37	38
Johnson Avenue	30	38	37
Terry Road	30	43	44
Bohemia Parkway	30	39	36
11th Street	30	34	37
Chester Road	30	38	39
Carrie Avenue	30	29	30
Railroad Avenue	30	37	37
Greene Avenue	30	32	33
Greeley Avenue	30	34	34
Cherry Avenue	30	38	38
Brook Street	30	34	33
Montauk Highway	40	48	46

TABLE 2: SPEED DATA DURING SUMMER SEASON

Roadway	Speed Limit (mph)	85th Percentile Speed (mph)	
		NB/EB	SB/WB
NYS Route 27 South Service Road between Smithtown Avenue and Lakeland Avenue	35	49	
Lakeland Avenue between Gibbons Court and 11th Street	30	40	39
Smithtown Avenue between Sunrise Highway South Service Road and Terry Road	30	37	38
Johnson Avenue	30	38	39
Terry Road	30	42	44
Bohemia Parkway	30	36	37
11th Street	30	34	33
Chester Road	30	34	35
Carrie Avenue	30	33	34
Railroad Avenue	30	34	34
Greene Avenue	30	35	34
Greeley Avenue	30	34	34
Cherry Avenue	30	34	36
Brook Street	30	36	37
Montauk Highway	40	48	46

It can be seen from the results obtained from the speed data that the 85th percentile speed for most of the studied roadways are slightly higher than the posted speed limit. Generally, the posted speed limits did not involve a study to determine what the appropriate speed limit should be based upon the roadway

geometric features. The 85th percentile speed that was recorded is the speed at which 85% of the motorists are driving at or below and more closely reflects what the posted speed should be based upon the roadway geometric features and the motorist's driving comfort. A summary of the speed data is included in the **Appendix B**.

Turning Movement Counts

School Peak season turning movement counts were collected at the study intersections using miovision cameras on Wednesday June 6, 2018 and on Saturday June 9, 2018. The recording was conducted from 6am to 8pm for weekday and from 9am to 6pm for Saturday. The data was processed for the weekday AM, PM and Saturday peak hours identified from the ATR data as shown above.

Summer peak season turning movement counts were collected at the study intersections using miovision cameras on Thursday July 12, 2018, Friday July 13, 2018 and on Saturday July 14, 2018. The recording was conducted from 6am to 8pm for Thursday, from 12pm to 8pm for Friday and from 9am to 6pm for Saturday. The data was processed for the weekday AM, PM, Friday PM and Saturday peak hours identified from the ATR data as shown above.

The volume data was tabulated to identify the peak hours at each of the Study Intersections. In order to perform a conservative analysis, the peak hour volumes at each intersection were utilized in this study. The existing intersection peak hour volumes are shown on Figures 3, 4, 5, 6, 7, 8 and 9 and detailed data are contained in tables in **Appendix C**.

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DATE:	11/1/18
JOB No.:	1630
CADD: Figures_2018 Analysis	
SCALE:	AS SHOWN

DRAWING TITLE:

AM EXISTING SCHOOL PEAK

GREY BARN ISLAND HILLS

TOWN OF ISLIP
SAYVILLE, NY

DRAWING NUMBER:

FIG-3

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CADD: Figures_2018 Analysis	
SCALE:	AS SHOWN

DRAWING TITLE:

PM EXISTING SCHOOL PEAK

GREY BARN ISLAND HILLS
TOWN OF ISLIP
SAYVILLE, NY

DRAWING NUMBER:

FIG-4

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SCALE:	AS SHOWN

DRAWING TITLE:

SATURDAY EXISTING SCHOOL PEAK

GREY BARN ISLAND HILLS
TOWN OF ISLIP
SAYVILLE, NY

DRAWING NUMBER:

FIG-5

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JOB No.:	1630
CADD: Figures_2018 Analysis	
SCALE:	AS SHOWN

DRAWING TITLE:

AM EXISTING SUMMER PEAK

GREY BARN ISLAND HILLS

TOWN OF ISLIP

SAYVILLE, NY

DRAWING NUMBER:

FIG-6

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DATE:	11/1/18
JOB No.:	1630
CADD: Figures_2018 Analysis	
SCALE:	AS SHOWN

DRAWING TITLE:

PM EXISTING SUMMER PEAK

GREY BARN ISLAND HILLS
TOWN OF ISLIP
SAYVILLE, NY

DRAWING NUMBER:

FIG-7

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CHK'D BY:	OSB
DATE:	11/1/16
JOB No.:	1630
CADD: Figures_2018 Analysis	
SCALE:	AS SHOWN

DRAWING TITLE:

FRIDAY PM EXISTING SUMMER PEAK

GREY BARN ISLAND HILLS

TOWN OF ISLIP
SAYVILLE, NY

DRAWING NUMBER:

FIG-8

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DATE:	11/1/16
JOB No.:	1630
CADD: Figures_2018 Analysis	
SCALE:	AS SHOWN

DRAWING TITLE:

SATURDAY EXISTING SUMMER PEAK

GREY BARN ISLAND HILLS

TOWN OF ISLIP

SAYVILLE, NY

DRAWING NUMBER:

FIG-9

Accident History

The most recent three years of accident data for the study intersections and roadways was obtained from the NYSDOT's Accident Location Information System (ALIS). This data was reviewed and analyzed. The accident data is contained in **Appendix D** of the report. The study locations are as follows:

- Smithtown Avenue from North Service Road to Island Boulevard/Terry Road
- Terry Road/Tariff Street from Island Boulevard/Smithtown Avenue to Lakeland Avenue
- Bohemia Parkway from South Service Road to Terry Road
- 11th Street from Bohemia Parkway to Lakeland Avenue
- Carrie Avenue from Marion Street to Terry Road
- Lakeland Avenue from North Service Road to Montauk Highway
- Depot Street from Greeley Avenue to Lakeland Avenue
- Montauk Highway from Garfield Avenue to Hiddink Street/Hanson Place
- Johnson Avenue from North Service Road to South Service Road
- Hiddink Street from Railroad Avenue to Montauk Highway
- Montauk Highway at Brook Street
- Montauk Highway at Cherry Avenue
- Cherry Avenue at Brook Street

The continuous roadway sections listed above, account for all intersections within the stated limits. Within the study area, there were a total of 263 accidents from March 2014, through February 2018 (3 years). No fatal accidents were recorded during the study period. The following table summarizes the accidents by severity and in an effort to minimize the size of the table, locations that did not experience any accidents during the study period were omitted.

TABLE 3: ACCIDENT SUMMARY BY SEVERITY

Location	Accident Severity				
	Fatality	Injury	Property Damage	Total	Average
Sunrise Highway North Service Road @ Smithtown Avenue	0	3	1	4	1.3
Smithtown Avenue between North Service Road and South Service Road	0	1	0	1	0.3
Sunrise Highway South Service Road @ Smithtown Avenue	0	2	1	3	1.0
Sunrise Highway North Service Road @ Lakeland Avenue	0	8	12	20	6.7
Lakeland Avenue between North Service Road and South Service Road	0	3	6	9	3.0
Sunrise Highway South Service Road @ Lakeland Avenue	0	7	12	19	6.3
Sunrise Highway North Service Road @ Johnson Avenue	0	4	4	8	2.7
Johnson Avenue between North Service Road and South Service Road	0	2	5	7	2.3
Sunrise Highway South Service Road @ Johnson Avenue	0	1	2	3	1.0

Location	Accident Severity				
	Fatality	Injury	Property Damage	Total	Average
Lakeland Avenue between Sunrise Highway South Service Road and 11th Street	0	0	1	1	0.3
Lakeland Avenue between 11th Street and Adams Way	0	1	1	2	0.7
Lakeland Avenue @ Adams Way	0	0	1	1	0.3
Lakeland Avenue @ Chester Road	0	2	5	7	2.3
Lakeland Avenue @ Marion Street	0	2	0	2	0.7
Lakeland Avenue @ Crosby Street	0	0	2	2	0.7
Lakeland Avenue between Crosby Street and Tariff Street	0	4	3	7	2.3
Lakeland Avenue @ Tariff Street	0	3	4	7	2.3
Lakeland Avenue @ Johnson Avenue	0	2	1	3	1.0
Lakeland Avenue between Johnson Avenue and Manton Street	0	0	1	1	0.3
Lakeland Avenue @ Manton Street	0	1	4	5	1.7
Lakeland Avenue between Manton Street and Henry Street	0	1	0	1	0.3
Lakeland Avenue @ Henry Street	0	1	7	8	2.7
Lakeland Avenue @ George Street	0	1	2	3	1.0
Lakeland Avenue between George Street and Marion Street	0	0	1	1	0.3
Lakeland Avenue @ High Street	0	2	0	2	0.7
Lakeland Avenue @ Elaine Drive	0	1	1	2	0.7
Lakeland Avenue between Eastover Road and Elaine Drive	0	0	2	2	0.7
Railroad Avenue @ Depot Street	0	1	8	9	3.0
Railroad Avenue between Depot Street and Hiddink Street	0	1	0	1	0.3
Railroad Avenue @ Hiddink Street	0	1	3	4	1.3
Railroad Avenue between Hiddink Street and Swayze Street	0	1	0	1	0.3
Railroad Avenue @ Swayze Street	0	0	1	1	0.3
Railroad Avenue between Swayze Street and Center Street	0	0	1	1	0.3
Railroad Avenue @ Center Street	0	0	5	5	1.7
Railroad Avenue between Center Street and Montauk Highway	0	0	2	2	0.7
Depot Street @ Greene Avenue	0	0	2	2	0.7
Depot Street between Greene Avenue and Greeley Avenue	0	0	1	1	0.3
Brook Street @ Cherry Avenue	0	1	0	1	0.3
Montauk Highway @ Brook Street	0	3	2	5	1.7
Montauk Highway @ Cherry Avenue	0	1	4	5	1.7

Location	Accident Severity				
	Fatality	Injury	Property Damage	Total	Average
Montauk Highway @ Garfield Avenue	0	3	1	4	1.3
Montauk Highway between Garfield Avenue and Handsome Avenue	0	0	2	2	0.7
Montauk Highway @ Handsome Avenue	0	2	3	5	1.7
Montauk Highway @ Greeley Avenue	0	0	5	5	1.7
Montauk Highway @ Greene Avenue	0	2	7	9	3.0
Montauk Highway between Greene Avenue and Candee Avenue	0	1	6	7	2.3
Montauk Highway @ Candee Avenue	0	0	2	2	0.7
Montauk Highway @ Gillette Avenue/Railroad Avenue	0	1	5	6	2.0
Montauk Highway between Railroad Avenue and Middle Road	0	1	1	2	0.7
Montauk Highway @ Middle Road	0	1	0	1	0.3
Montauk Highway between Middle Road and Lincoln Avenue	0	1	0	1	0.3
Montauk Highway @ Lincoln Avenue	0	2	4	6	2.0
Montauk Highway between Lincoln Avenue and Foster Avenue	0	1	1	2	0.7
Montauk Highway @ Foster Avenue	0	3	7	10	3.3
Montauk Highway between Foster Avenue and Hiddink Street	0	0	2	2	0.7
Montauk Highway @ Hanson Pl./Hiddink Street	0	2	3	5	1.7
Montauk Highway between Overton Street and Hiddink Street	0	0	1	1	0.3
Hiddink Street between Lincoln Avenue and Montauk Highway	0	0	1	1	0.3
Hiddink Street between Smith Street and Railroad Avenue	0	0	1	1	0.3
Tariff Street @ Chester Road	0	2	0	2	0.7
Tariff Street @ Cliff Avenue	0	2	0	2	0.7
Tariff Street @ Greeley Avenue	0	0	3	3	1.0
Tariff Street @ Willett Avenue	0	0	1	1	0.3
Tariff Street @ Yonda Drive	0	0	1	1	0.3
Johnson Avenue @ Joseph Street	0	0	1	1	0.3
Bohemia Pkwy @ East Golf Street	0	0	1	1	0.3
Lincoln Avenue @ Hiddink Street	0	3	8	11	3.7
Total	0 *0%*	88 *33%*	175 *67%*	263 *100%*	87.7

As can be seen from Table 3, a majority of the accidents, 67% (175), involved property damage only, 33% (88 accidents) involved injury and 0 accidents resulted in a fatality. The locations with the highest number of accidents are Lakeland Avenue at North Service Road and Lakeland Avenue at South Service Road, which experienced 20 and 19 crashes respectively or an average of 6.7 and 6.3 accidents per year. A majority of these crashes resulted in property damage only, 60% at the North Service Road and 63% at the South Service Road. The location with the 3rd highest number of crashes is Lincoln Avenue and Hiddink, with 11 accidents or 3.7 per year. Again, the majority of accidents (72%) resulted in property damage only. Within the study area, only 7 locations experienced 3 or more crashes annually.

The following table summarizes crashes by type to highlight locations that may experience a frequency of a specific collision type that is susceptible to correction by engineering measures.

TABLE 4: ACCIDENT SUMMARY BY TYPE OF COLLISION

Location	Accident Type											
	Right Angle	Rear End	Head On	Left Turn	Right Turn	Fixed Object	Ped/ Bicycle	Parked	Backing	Ovrtk*	Other/ Unknown	Total
Sunrise Highway North Service Road @ Smithtown Avenue	1	1	0	1	0	0	0	0	0	0	1	4
Smithtown Avenue between North Service Road and South Service Road	1	0	0	0	0	0	0	0	0	0	0	1
Sunrise Highway South Service Road @ Smithtown Avenue	3	0	0	0	0	0	0	0	0	0	0	3
Sunrise Highway North Service Road @ Lakeland Avenue	0	10	0	1	0	2	0	0	0	4	3	20
Lakeland Ave between North Service Road and South Service Road	1	5	0	0	0	0	0	0	0	1	2	9
Sunrise Highway South Service Road @ Lakeland Avenue	2	10	3	1	0	0	0	0	0	2	1	19
Sunrise Highway North Service Road @ Johnson Avenue	2	3	0	1	0	0	1	0	0	1	0	8
Johnson Ave between North Service Road and South Service Road	1	2	0	0	0	1	0	1	0	1	1	7
Sunrise Highway South Service Road @ Johnson Avenue	3	0	0	0	0	0	0	0	0	0	0	3
Lakeland Ave between Sunrise Highway South Service Road and 11th Street	0	0	0	0	0	0	0	0	0	1	0	1

Location	Accident Type											
	Right Angle	Rear End	Head On	Left Turn	Right Turn	Fixed Object	Ped/ Bicycle	Parked	Backing	Ovrtk*	Other/ Unknown	Total
Lakeland Avenue between 11th Street and Adams Way	0	0	0	0	1	0	0	0	0	1	0	2
Lakeland Avenue @ Adams Way	0	0	0	1	0	0	0	0	0	0	0	1
Lakeland Avenue @ Chester Road	3	2	0	1	0	0	0	1	0	0	0	7
Lakeland Avenue @ Marion Street	2	0	0	0	0	0	0	0	0	0	0	2
Lakeland Avenue @ Crosby Street	0	1	0	0	0	0	0	1	0	0	0	2
Lakeland Avenue between Crosby Street and Tariff Street	1	1	0	0	0	0	1	0	0	1	3	7
Lakeland Avenue @ Tariff Street	2	0	0	0	1	1	1	0	1	0	1	7
Lakeland Avenue @ Johnson Avenue	1	1	0	0	0	1	0	0	0	0	0	3
Lakeland Avenue between Johnson Avenue and Manton Street	0	1	0	0	0	0	0	0	0	0	0	1
Lakeland Avenue @ Manton Street	2	1	0	0	0	0	0	0	0	0	2	5
Lakeland Avenue between Manton Street and Henry Street	0	0	0	0	0	0	1	0	0	0	0	1
Lakeland Avenue @ Henry Street	5	0	0	0	0	0	0	0	0	1	2	8
Lakeland Avenue @ George Street	0	0	0	1	0	0	0	1	0	0	1	3
Lakeland Avenue between George Street and Marion Street	1	0	0	0	0	0	0	0	0	0	0	1
Lakeland Avenue @ High Street	0	0	0	0	0	0	0	0	1	0	1	2
Lakeland Avenue @ Elaine Drive	1	1	0	0	0	0	0	0	0	0	0	2
Lakeland Avenue between Eastover Road and Elaine Drive	1	1	0	0	0	0	0	0	0	0	0	2
Railroad Avenue @ Depot Street	0	1	0	0	0	0	0	1	1	4	2	9
Railroad Ave between Depot Street and Hiddink Street	0	0	0	0	0	0	1	0	0	0	0	1
Railroad Avenue @ Hiddink Street	1	0	0	0	1	0	0	0	1	0	1	4

Location	Accident Type											
	Right Angle	Rear End	Head On	Left Turn	Right Turn	Fixed Object	Ped/ Bicycle	Parked	Backing	Ovrtk*	Other/ Unknown	Total
Railroad Ave between Hiddink Street and Swayze Street	0	0	0	0	0	1	0	0	0	0	0	1
Railroad Avenue @ Swayze Street	0	0	0	0	0	0	0	0	1	0	0	1
Railroad Avenue between Swayze Street and Center Street	0	0	0	0	0	0	0	1	0	0	0	1
Railroad Avenue @ Center Street	0	0	0	1	0	0	0	3	1	0	0	5
Railroad Avenue between Center Street and Montauk Highway	0	0	0	0	0	0	0	2	0	0	0	2
Depot Street @ Greene Avenue	0	2	0	0	0	0	0	0	0	0	0	2
Depot Street between Greene Avenue and Greeley Avenue	0	0	0	0	0	0	0	0	1	0	0	1
Brook Street @ Cherry Avenue	0	0	0	0	0	0	1	0	0	0	0	1
Montauk Highway @ Brook Street	0	3	0	0	0	1	0	0	0	0	1	5
Montauk Highway @ Cherry Avenue	0	1	0	0	1	1	0	0	0	1	1	5
Montauk Highway @ Garfield Avenue	1	0	0	3	0	0	0	0	0	0	0	4
Montauk Highway between Garfield Avenue and Handsome Avenue	0	0	0	0	0	0	0	0	1	0	1	2
Montauk Highway @ Handsome Avenue	1	1	0	0	0	0	1	0	0	1	1	5
Montauk Highway @ Greeley Avenue	2	1	0	0	0	0	0	2	0	0	0	5
Montauk Highway @ Greene Avenue	0	2	1	0	0	1	0	3	1	0	1	9
Montauk Highway between Greene Avenue and Candee Avenue	1	0	0	0	0	0	1	4	0	0	1	7
Montauk Highway @ Candee Avenue	0	1	0	0	1	0	0	0	0	0	0	2
Montauk Highway @ Gillette Avenue/Railroad Avenue	0	2	0	0	0	0	0	0	0	3	1	6
Montauk Highway between Railroad Avenue and Middle Road	0	0	0	0	1	0	0	0	0	0	1	2
Montauk Highway @ Middle Road	0	0	0	0	0	1	0	0	0	0	0	1

Location	Accident Type											
	Right Angle	**Rear End**	**Head On**	**Left Turn**	**Right Turn**	**Fixed Object**	**Ped/ Bicycle**	**Parked**	**Backing**	**Ovrtk***	**Other/ Unknown**	**Total**
Montauk Highway between Middle Road and Lincoln Avenue	0	1	0	0	0	0	0	0	0	0	0	1
Montauk Highway @ Lincoln Avenue	1	2	0	0	0	0	0	2	0	1	0	6
Montauk Highway between Lincoln Ave and Foster Avenue	1	0	0	1	0	0	0	0	0	0	0	2
Montauk Highway @ Foster Avenue	1	0	0	3	0	0	1	1	0	2	2	10
Montauk Highway between Foster Avenue and Hiddink Street	0	1	0	0	0	0	0	0	1	0	0	2
Montauk Highway @ Hanson Place/Hiddink Street	0	3	0	0	0	2	0	0	0	0	0	5
Montauk Highway between Overton Street and Hiddink Street	0	0	0	0	0	0	0	0	0	1	0	1
Hiddink Street between Lincoln Avenue and Montauk Highway	0	0	0	0	0	0	0	1	0	0	0	1
Hiddink Street between Smith Street and Railroad Avenue	0	0	0	0	0	0	0	1	0	0	0	1
Tariff Street @ Chester Road	0	0	0	0	0	1	1	0	0	0	0	2
Tariff Street @ Cliff Avenue	0	1	0	1	0	0	0	0	0	0	0	2
Tariff Street @ Greeley Avenue	1	0	0	0	0	0	0	0	0	1	1	3
Tariff Street @ Willett Avenue	0	1	0	0	0	0	0	0	0	0	0	1
Tariff Street @ Yonda Drive	1	0	0	0	0	0	0	0	0	0	0	1
Johnson Avenue @ Joseph Street	0	0	0	0	0	0	0	1	0	0	0	1
Bohemia Parkway @ East Golf Street	0	0	0	0	0	0	0	0	0	1	0	1
Lincoln Avenue @ Hiddink Street	6	2	0	1	0	1	1	0	0	0	0	11
Total	50 *19%*	65 *25%*	4 *2%*	17 *6%*	6 *2%*	14 *5%*	11 *4%*	26 *10%*	10 *4%*	28 *11%*	32 *12%*	263 *100%*

*Ovrtk = Overtaking

A review of Table 4 indicates that the three most prevalent accident types were rear end accidents (25%), right angle accidents (19%) and other/unknown type accidents (12%), followed by overtaking accidents (11%) and accidents involving parked vehicles (10%).

Due to the relatively low accident occurrence at a majority of the study locations, the 7 intersections or roadway segments which experience 3 or more crashes annually were selected for further analysis. When determining which intersections to select for further analysis we considered crash experience criteria within the Federal Manual of Uniform Traffic Control Devices (MUTCD) under the crash experienced warrant for traffic control signal needs studies, Chapter 4C. The manual states that when considering an intersection for the highest level of traffic control (traffic signal) the following criteria should be satisfied- *Five or more reported crashes, of types susceptible of correction by a traffic control signal, have occurred within a twelve-month period, each crash involving personal injury or property damage apparently exceeding the applicable requirements for a reportable crash.* Therefore, we feel that providing further analysis for locations with 3 or more accidents of any type annually is a conservative approach.

The following table provides a rate comparison of the 7 locations to the statewide average.

TABLE 5: ACCIDENT RATE COMPARISON

Location	Average No. of Accidents (per year)	Intersection /Linear Section Accident Rate	
		Calculated Accident Rate	NYSDOT Accident Rate
Sunrise Highway North Service Road @ Lakeland Avenue	6.7	0.60	0.32
Lakeland Avenue between North Service Road and South Service Road	3.0	3.94	3.22
Sunrise Highway South Service Road @ Lakeland Ave	6.3	0.66	0.32
Railroad Avenue @ Depot Street	3.0	1.15	0.18
Montauk Highway @ Greene Avenue	3.0	0.35	0.52
Montauk Highway @ Foster Avenue	3.3	0.51	0.52
Lincoln Avenue @ Hiddink Street	3.7	1.67	0.29

As can be seen from the Table above, 5 locations experience accident rates that exceed the statewide average. Based on the proposed project trip assignments, the project is anticipated to add incremental volume to these locations. Therefore, we will explore the anticipated traffic increase at each location and project future accident rates based on these volumes.

The increase in accident occurrence at these locations was estimated by factoring the existing number of accidents by the increase in traffic anticipated by the proposed project. A worst-case scenario between the AM and PM peaks was utilized. Based on the anticipated traffic volumes, the table below summarizes the anticipated changes.

TABLE 6: FORECAST ACCIDENT RATE COMPARISON

Location	Existing		Forecast	
	No. of Accidents (over a 3-year period)	Average No. of Accidents (per year)	No. of Accidents (over a 3-year period)	Average No. of Accidents (per year)
Sunrise Highway North Service Road @ Lakeland Avenue	20	6.7	21.5	7.2
Lakeland Avenue between North Service Road and South Service Road	9	3.0	10.8	3.6
Sunrise Highway South Service Road @ Lakeland Avenue	19	6.3	21.8	7.3
Railroad Avenue @ Depot Street	9	3.0	9.5	3.2
Montauk Highway @ Greene Avenue	9	3.0	9.1	3
Montauk Highway @ Foster Avenue	10	3.3	10	3.3
Lincoln Avenue @ Hiddink Street	11	3.7	11.2	3.7

Upon review of the table above, it can be seen that the additional traffic volume on the study roadway will contribute minimally to the existing accident rates and only one location may see an average increase of 1 accident per year.

A further review of crashes that occurred at the intersections with more than 3 crashes per year and higher than statewide accident rate in the vicinity of the site was conducted. From the Table above, three locations were identified (Sunrise Highway North Service Road at Lakeland Avenue, Lakeland Avenue between North Service Road and South Service Road and Sunrise Highway South Service Road at Lakeland Avenue) with a total of 48 accidents over the 3-year period. Of the 48 crashes, 25 (52%) are rear-end collisions, 7 (15%) involves overtaking and 6 (12%) are unknown type accidents. 30 (63%) of the 48 accidents resulted in property damage. Only 18 (37%) of the 48 accidents resulted in an injury. The accident reports of these 48 accidents were reviewed to identify the possible causes of these accidents and identify potential countermeasures to reduce the accidents at these locations. From the review of the reports, 41 (85%) of the 48 crashes are attributed to driver inattention, 3 (6%) are weather related, 1 (2%) involves a defective car, 1 (2%) is attributed to debris/obstruction and 2 (4%) are related to unknown type crashes. It should be noted that accidents associated with driver inattention are not correctable by geometric or any improvements to traffic flow. The increase use of cell phones and other electronic devises when driving may have increased the number of distracted drivers and hence the potential increase of such accidents associated with distraction and driver error. As previously noted, the amount of traffic added to Lakeland Avenue by the proposed project should not increase this type of crashes. However, as will be seen later in this report, the following physical or geometric improvements

have been proposed and will be constructed by the applicant to mitigate the traffic and safety impacts.

- Widen Lakeland Avenue between Chester Road and 11th Street to provide an additional northbound through lane. The widening will begin around Eastover Road and extends to meet the existing 2 lane section of Lakeland Avenue just north of 11th Street. The segment of Lakeland Avenue between Eastover Road and Chester Road will be striped to provide one shared northbound left turn/through lane into Chester Street and one through lane.
- The southbound approach of this intersection of Lakeland Avenue at NYS Route 27 North Service Road which currently provides an exclusive through lane, a shared through/right turn lane and an exclusive right turn lane will be redesigned to provide two exclusives through lanes and two exclusive right turn lanes. Minor signal timing adjustments will also be conducted for the northbound left turn phase.

According to the 2018 New York State Department of Transportation Post Implementation Evaluation System (PIES) Reduction Factor Report, the addition of lanes may reduce injury accidents by 36%. Therefore, the physical or geometric improvements proposed on Lakeland Avenue as part of this project will improve safety on this corridor.

Travel Time and Delay Studies

To address concerns raised by Sayville residents on the potential impacts of the proposed project on the existing congestion on Brook Street and Montauk Highway, due the traffic bypassing the congestion at the Heckscher Spur interchange with NYS Route 27, travel time and delay runs were conducted along the following two corridors for a typical AM (7am-9am) and PM (4pm-7pm) peak periods for both the school peak season and the summer season using GPS and video technology which effectively outdates the traditional floating car technique to compare travel times using both routes.

- Corridor 1 -Travelling to and from the proposed site and the Heckscher Spur Interchange/Southern State Parkway via NYS Route 27 (Sunrise Highway). Corridor 1 is approximately 5 miles long.
- Corridor 2 -Travelling to and from the proposed site and the Heckscher Spur Interchange/Southern State Parkway via Montauk Highway. Corridor 2 is approximately 7.5 miles long.

Prior to conducting the travel time runs, a Dash Cam device is mounted in the test vehicle and set to record. A minimum of three (3) speed runs were conducted for each travel direction during both the AM and PM peak periods for both the school and summer seasons. During each run, the device reports the vehicle's exact latitude, longitude, speed, distance and bearing once every second and saved in kml and excel formats. The average speed and travel time for each study roadway segment was calculated. The run corresponding to the lowest average travel speed was used for the speed analyses. The results of the speed study for each period are summarized in the following tables. **Appendix E** of the report contains the detailed travel speed and delay data.

TABLE 7: AVERAGE SPEED AND TRAVEL TIMES – SCHOOL PEAK SEASON					
Peak Period	**Route**	**Direction of Travel**	**Average Speed**	**Travel Time**	**Segment length (miles)**
AM	Corridor 1	EB	43.27	7.05	5.0
	Corridor 2		26.72	16.43	7.5
	Corridor 1	WB	26.48	11.00	5.0
	Corridor 2		26.9	16.72	7.5
PM	Corridor 1	EB	12.89	23.47	5.0
	Corridor 2		19.22	22.37	7.5
	Corridor 1	WB	13.94	21.00	5.0
	Corridor 2		24.59	16.77	7.5

TABLE 8: AVERAGE SPEED AND TRAVEL TIMES – SUMMER SEASON					
Peak Period	**Route**	**Direction of Travel**	**Average Speed**	**Travel Time**	**Segment length (miles)**
AM	Corridor 1	EB	43.87	6.95	5.1
	Corridor 2		33.14	13.00	7.4
	Corridor 1	WB	33.2	8.97	4.9
	Corridor 2		30.35	13.7	7.6
PM	Corridor 1	EB	19.54	15.57	5.1
	Corridor 2		21.88	19.43	7.2
	Corridor 1	WB	14.68	19.9	4.9
	Corridor 2		25.35	16.33	7.6

The travel speed data in Tables 7 and 8 above show that Corridor 2 is longer than Corridor 1 and the travel times are lower on Corridor 1 during the AM peak hours and hence there is no incentive to use Brook Street and/or Montauk Highway to bypass any congestion on either eastbound or westbound NYS Route 27 (sunrise Highway) during the AM peak hour for both the school and summer peaks. During the PM peak hour, the travel times on Corridor 1 are slightly longer than those for Corridor 2 but not significant enough to incentivize the use of Montauk Highway and Brook Street as a bypass to avoid congestion on Sunrise Highway, especially when the proposed development is closer to Sunrise Highway than Montauk Highway. It was observed during our field observations and speed and delay runs that most of the vehicles using Exit 45 (Montauk Highway) instead of Exit 44 (Sunrise Highway), do so to bypass the vehicle queues leading to Exit 44. However, the delays these vehicles encounter on Montauk Highway after using Exit 45 wipes out the time saved by avoiding Exit 44, making the difference in travel time between Corridor 1 and Corridor 2 insignificant.

Traffic from the proposed project that will be using Montauk Highway has already been accounted for in the trip distribution and generation and hence included in the traffic analyses. However, to further identify any potential impact of any increase in use of Brook Street and Montauk Highway by the traffic from the proposed project to avoid congestion at the interchange, we assumed a conservative 10% of the project

traffic anticipated to use NYS Route 27 (Sunrise Highway) during the PM peak hours will use Montauk Highway as a bypass. Based on our trip generation and distribution for the full build out of the project, a total of 73 vehicles will be leaving the site to head west on NYS Route 27 (Sunrise Highway) and a total 113 vehicles will be heading to the site travelling east on NYS Route 27 (Sunrise Highway). These numbers will result in 8 vehicles using Montauk Highway as a bypass travelling west and 12 vehicles using Montauk Highway as a bypass travelling east. These numbers amount to, at most, 1 vehicle every 5 minutes. This increase will not exacerbate the existing traffic congestion on these roadways; hence the proposed project will not create any significant impacts on the operation of these roadways.

Existing Conditions Analyses

Level of Service Descriptions

In order to identify the operational characteristics of the Study Intersections, level of service and capacity analyses were performed using *SYNCHRO Version 10* Software. *SYNCHRO*, in conjunction with *SimTraffic*, is a software package that allows for an interactive analysis of a single intersection or a network of intersections and can also be used for modeling and optimizing traffic signal timings. The *SimTraffic* component provides simulations of operations with animation features. *SYNCHRO* implements the Intersection Capacity Utilization ("ICU") 2003 method for determining intersection capacity. This method compares the current volume to the intersection's ultimate capacity. *SYNCHRO* also implements the methods of the 2000 Highway Capacity Manual ("HCM") for Urban Streets, Signalized Intersections, and Unsignalized Intersections, for determining intersection capacity analyses. The *HCM* contains procedures and methodologies for estimating capacity and determining level of service for many transportation facilities and modes including signalized and unsignalized intersections. The 2000 edition of this manual was updated in 2010 as *Highway Capacity Manual 2010.*

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

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

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

Existing Conditions Capacity Analyses

Capacity analyses were conducted for the 2018 Existing Conditions at the study intersections. The following is a summary of the capacity analyses results for the 2018 existing conditions during the weekday AM, PM and Saturday peak periods for the school peak season and the Weekday AM, PM, Friday PM, and Saturday peak hours for the summer season. The existing models were calibrated for the weekday AM and PM School peak hours since they represent the worst conditions, and the model results for each existing condition validated based on comparing these results to field observations and measurements of travel time, vehicle speeds and delays. After the existing synchro model was developed, the capacity analyses results were reviewed to identify intersections and roadway segments with potential issues. Detailed field observations were then conducted at these study intersections to field measure vehicles queues and delays. The following tables summarize the results of the field measured delays and queues compared to the capacity analyses results for the most critical corridor in the study area (Lakeland Avenue/Railroad Avenue) during the weekday AM and PM school peak hours.

Signalized Intersections

Signalized Intersection Delay Studies:
The signalized Intersection Delay Studies were conducted using a mechanical Jamar Board (TDC-Ultra Traffic Data Collector) to enable us to measure the delay of each vehicle. The method used by the TDC - Ultra Traffic Data Collector for this study follows the standard method used by traffic engineers to do intersection delay studies. The signalized intersection delay study requires the recording of every vehicle that comes to the intersection from a specific approach as either having stopped (the light is red or light is green but a queue existing) or gone through (the light is green and no queue exists). A vehicle is only recorded once as either stopped or through. Secondly, while recording the approach vehicles the TDC-Ultra Traffic Data Collector will beep at a distinguished interval we have selected (between 10 and 16 seconds). When the beep occurs, the number of vehicles in the queue at the exact moment are entered. These two procedures, taken together provides enough information to give measurements of the delay at that approach.

The Signalized Intersection delay studies were conducted for one approach at each of the signalized intersections along the Lakeland Avenue/Railroad Avenue corridor during the weekday AM and PM school peak periods and delay results compared to does calculated from the Synchro model. The following tables summarizes the results of the field measured delays and the delays form the synchro model.

TABLE 9: QUEUE AND DELAY COMPARISON – EXISTING AM SCHOOL PEAK

Signalized Intersections	Approach	Field Measurements		Synchro Model	
		Maximum Queue (veh)	Delay (secs)	95th Percentile Queue (veh)*	Delay (secs)
Lakeland Avenue at NYS Route 27 NSR	Lakeland Avenue NB	17	20.4	14	20.5
Lakeland Avenue at NYS Route 27 SSR	Lakeland Avenue SB	8	14.8	5	22.2
Lakeland Avenue at Gibbons Court	Gibbons Court WB	2	14.4	1	16.7
Lakeland Avenue at Tariff Street	Tariff Street EB	8	38.1	8	43.6
Lakeland Avenue at Manton Street	Manton Street EB	3	22.5	3	23.5
Railroad Avenue at Montauk Highway	Montauk Highway EB	7	14.8	9	12.4

TABLE 10: QUEUE AND DELAY COMPARISON – EXISTING PM SCHOOL PEAK

Signalized Intersections	Approach	Field Measurements		Synchro Model	
		Maximum Queue (veh)	Delay (secs)	95th Percentile Queue (veh)*	Delay (secs)
Lakeland Avenue at NYS Route 27 NSR	Lakeland Avenue NB	13	25.9	9	23.1
Lakeland Avenue at NYS Route 27 SSR	Lakeland Avenue SB	14	33.3	9	34.1
Lakeland Avenue at Gibbons Court	Gibbons Court WB	3	20.5	1	21.1
Lakeland Avenue at Tariff Street	Tariff Street EB	12	48.3	8	45.5
Lakeland Avenue at Manton Street	Manton Street EB	5	26.8	4	21.2
Railroad Avenue at Montauk Highway	Montauk Highway EB	10	12.8	22	18.4

* Assume vehicle length = 20 feet

From the review of Tables 9 and 10 above, it can be seen that the measured delays and queues at the specific approaches to the signalized intersections along the Lakeland Avenue/Railroad Avenue corridor are similar to the delays calculated from the Synchro model. Therefore, no modifications to the synchro models are required for the signalized intersections.

The capacity analysis results at the signalized intersections during the analyzed peak periods for both the school peak and summer seasons are discussed below:

Smithtown Avenue at NYS Route 27 North Service Road

During the Existing school peak condition, the signalized intersection of Smithtown Avenue and NYS Route 27 North Service Road operates at overall LOS D, D and B during the AM, PM and Saturday midday peak hours respectively. Individual movements experience LOS ranging from A to E. During the Existing summer peak condition, the signalized intersection of Smithtown Avenue and NYS Route 27 North Service Road operates at overall LOS B, C, D and B during the AM, PM, Friday PM and Saturday midday peak hours respectively. Individual movements experience LOS ranging from A to D.

Smithtown Avenue at NYS Route 27 South Service Road

During the Existing school peak and summer conditions, the signalized intersection of Smithtown Avenue and NYS Route 27 South Service Road operates at overall LOS B during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to C.

Lakeland Avenue at NYS Route 27 North Service Road

During the Existing school peak condition, the signalized intersection of Lakeland Avenue and NYS Route 27 North Service Road operates at overall LOS D, E and C during the AM, PM and Saturday midday peak hours respectively. Individual movements experience LOS ranging from A to F. During the Existing summer peak condition, the signalized intersection of Lakeland Avenue and NYS Route 27 North Service Road operates at overall LOS C, D, E and C during the AM, PM, Friday PM and Saturday midday peak hours respectively. Individual movements experience LOS ranging from A to F.

Lakeland Avenue at NYS Route 27 South Service Road

During the Existing school peak and summer conditions, the signalized intersection of Lakeland Avenue and NYS Route 27 South Service Road operates at overall LOS C during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to D.

Johnson Avenue at NYS Route 27 North Service Road

During the Existing school peak condition, the signalized intersection of Johnson Avenue and NYS Route 27 North Service Road operates at overall LOS E, D and B during the AM, PM and Saturday midday peak hours respectively. Individual movements experience LOS ranging from A to F. During the Existing summer peak condition, the signalized intersection of Johnson Avenue and NYS Route 27 North Service Road operates at overall LOS C during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from B to E.

Johnson Avenue at NYS Route 27 South Service Road

During the Existing school peak and summer conditions, the signalized intersection of Johnson Avenue and NYS Route 27 South Service Road operates at overall LOS C or better during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to D.

Lakeland Avenue at Gibbons Court

During the Existing school peak and summer conditions, the signalized intersection of Lakeland Avenue at Gibbons Court operates at overall LOS A during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to C.

Lakeland Avenue at Tariff Street/Johnson Avenue

During the Existing school peak and summer conditions, the signalized intersection of Lakeland Avenue at Tariff Street/Johnson Avenue operates at overall LOS D or better during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to F.

Lakeland Avenue at Manton Street

During the Existing school peak and summer conditions, the signalized intersection of Lakeland Avenue at Manton Street operates at overall LOS B or better during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to C.

Montauk Highway at Brook Street

During the Existing school peak and summer conditions, the signalized intersection of Montauk Highway at Brook Street operates at overall LOS A during the AM, PM, Friday PM and Saturday midday peak hours.

Montauk Highway at Cherry Avenue

During the Existing school peak and summer conditions, the signalized intersection of Montauk Highway at Cherry Avenue operates at overall LOS B or better during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to D.

Montauk Highway at Greene Avenue

During the Existing school peak and summer conditions, the signalized intersection of Montauk Highway at Greene Avenue operates at overall LOS B during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to E.

Montauk Highway at Gillette Avenue/Railroad Avenue

During the Existing school peak and summer conditions, the signalized intersection of Montauk Highway at Gillette Avenue/Railroad Avenue operates at overall LOS B or better during the AM, PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to E.

Montauk Highway at Lincoln Avenue/Shopping Center

During the Existing school peak and summer conditions, the signalized intersection of Montauk Highway at Lincoln Avenue/Shopping Center operates at overall LOS C or better during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to E.

Montauk Highway at Foster Avenue/Shopping Center

During the Existing school peak and summer conditions, the signalized intersection of Montauk Highway at Foster Avenue/Shopping Center operates at overall LOS C or better during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to E.

Montauk Highway at Hiddink Street/Hanson Place

During the Existing school peak and summer conditions, the signalized intersection of Montauk Highway Hiddink Street/Hanson Place operates at overall LOS C or better during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to D.

Smithtown Avenue at Terry Road/Island Boulevard

During the Existing school peak and summer conditions, the signalized intersection of Smithtown Avenue at Terry Road/Island Boulevard operates at overall LOS B or better during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to C.

Cherry Avenue at Brook Street

During the Existing school peak and summer conditions, the signalized intersection of Cherry Avenue at Brook Street operates at overall LOS B or better during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to B.

Unsignalized Intersections

The following unsignalized intersections and site access points were analyzed.

- Lakeland Avenue at 11th Street
- Lakeland Avenue at Chester Road
- Lakeland Avenue at Henry Street
- Railroad Avenue at Depot Street
- Railroad Avenue at Hiddink Street
- Railroad Avenue at Center Street
- Montauk Highway at Greeley Avenue/Shopping Center
- Terry Road at Bohemia Parkway
- Terry Road at St. Johns Street
- Terry Road at Sterling Place
- Terry Road at Carrie Avenue
- Tariff Street Cherry Avenue
- Tariff Street at Chester Road
- NYS Route 27 South Service Road at Bohemia Parkway
- Bohemia Parkway at 11th Street
- Carrie Avenue at Marion Street
- Carrie Avenue at Sterling Place
- Lincoln Avenue at Hiddink Street
- 11th Street at Site Access
- Terry Road at Site Access

Delay Measurements at Unsignalized Intersections:

The Stop Sign Delay studies were conducted using a mechanical Jamar Board (TDC- Ultra Traffic Data Collector) to enable us to measure the traffic characteristics at the intersections controlled by a stop sign. Although it primarily measures delay, it also provides information about queue length and traffic volumes at the unsignalized approach. The procedure implemented by the TDC- Ultra Traffic Data Collector is based on accurately measuring the time that events happen. The procedure to measure the field delay involves pressing a key on the count board when a vehicle stops at the end of the queue and another key when a vehicle (not necessarily the same one) crosses the stop bar. The TDC- Ultra Traffic Data Collector accurately measures the times when each key is pressed. The analyses software then calculate how long it takes each vehicle to progress through the queue and enter the intersection. The software also calculates the number of cars in the queue at all times. These studies were done on the stop-controlled approach with the highest volume, since that approach would likely have the longest delay.

The following tables summarizes the results of the field measured delays and the delays form the existing conditions synchro model.

TABLE 11: QUEUE AND DELAY COMPARISON – EXISTING AM SCHOOL PEAK

Unsignalized Intersections	Approach	Field Measurements		Synchro Model	
		Maximum Queue (veh)	Delay (secs)	95th Percentile Queue (veh)*	Delay (secs)
Lakeland Avenue at 11th Street	EB 11th Street	1	20.3	0	22.6
Lakeland Avenue at Chester Road	EB Chester Road	2	19.3	2	37
Lakeland Avenue at Henry Street	WB Henry Street	3	13.9	2	18.3
Lakeland Avenue at Depot Street	EB Depot Street	2	8.9	1	13.9
Lakeland Avenue at Hiddink Street	WB Hiddink Street	2	10.3	1	12.4
Lakeland Avenue at Center Street	EB Center Street	1	11.9	1	12.7

* Assume vehicle length = 20 feet

TABLE 12: QUEUE AND DELAY COMPARISON – EXISTING PM SCHOOL PEAK

Unsignalized Intersections	Approach	Field Measurements		Synchro Model	
		Maximum Queue (veh)	Delay (secs)	95th Percentile Queue (ft)	Delay (secs)
Lakeland Avenue at 11th Street	EB 11th Street	1	21.3	0	22.5
Lakeland Avenue at Chester Road	EB Chester Road	3	31.7	4	83
Lakeland Avenue at Henry Street	WB Henry Street	3	20	2	24.6
Lakeland Avenue at Depot Street	EB Depot Street	4	17.7	3	25.6
Lakeland Avenue at Hiddink Street	WB Hiddink Street	5	18.6	4	26.3
Lakeland Avenue at Center Street	EB Center Street	3	34.6	3	28.9

From the review of Tables 11 and 12 above, it can be seen that the measured delays at the stop-controlled approaches to unsignalized intersections along the Lakeland Avenue/Railroad Avenue corridor are lower than the delays calculated from the Synchro model. The field measured queue lengths are similar to those in the synchro models for the most part. During our filed visits and review of videos of the traffic data collection vehicles were observed exiting most of the stop-controlled leg of intersections along Lakeland Avenue, Railroad Avenue and Montauk Highway during gaps shorter than five (5) seconds. However, the synchro program used for the analyses utilizes critical gaps greater than five (5) seconds for vehicles making a right or left turn out of a stop-controlled intersection. In order to estimate more realistic project impacts two sets of analyses were conducted for the unsignalized intersections along the Lakeland Avenue/Railroad Avenue corridor during the school AM and PM peak hours

- **Calibrated Synchro Model** - The critical gap acceptances and/or the vehicle follow-up times for the stop-controlled approaches of the unsignalized intersections in the synchro models were adjusted to calibrate the synchro models to reflect field queues and delays. The calibrated synchro models were then used to conduct the future traffic analyses to estimate project impacts.

- **No Calibration**- As previously mentioned, the field measured delays are lower than the delays calculated from the synchro model. Hence, to perform a conservative analysis, the higher default

values in the synchro program were not adjusted. Capacity analyses were conducted for the unsignalized intersections during the peak periods studied using the default values.

The following is a summary of the existing conditions capacity analyses results for the unsignalized intersections with and without calibration. The detailed capacity analyses worksheets are contained in **Appendix J.**

A summary of the capacity analyses results at the unsignalized intersections during the analyzed peak periods for both the school peak and summer seasons is discussed below. Detailed LOS tables and synchro results are contained in **Appendix I**.

The LOS results for the unsignalized intersections show that all the intersections operate at acceptable LOS D or better during the existing conditions for all analyzed peak periods except for eastbound Chester Road at the intersection of Lakeland Avenue and Chester Road which operates at LOS F during all analyzed peak periods. The northbound approach at the intersection of Montauk Highway and Greeley Avenue/Shopping Center Driveway operate at LOS E or F during the PM and Saturday peak hours. The eastbound Depot Street approach at Railroad Avenue also operates at LOS E during the Saturday summer peak hour. As previously mentioned, during field observations conducted to calibrate the existing conditions model, vehicles were observed exiting the minor approaches of stop-controlled leg of intersections along Lakeland Avenue, Railroad Avenue and Montauk Highway during gaps shorter than five (5) seconds. Therefore, the unsignalized intersections along the Lakeland Avenue/Railroad Avenue corridor were analyzed with and without the calibration of the AM and PM school peak hour synchro models. The following are the results of the capacity analyses at these intersections with and without the calibration.

TABLE 13: EXISTING CONDITION LEVEL OF SERVICE SUMMARY WITH AND WITHOUT CALIBRATION

Intersections		AM School Peak			
		Existing -Without		Existing – With	
Intersection	Approach/Movt.	Delay	LOS	Delay	LOS
Lakeland Avenue & 11th Street	EB	22.6	C	22.6	C
	NB	9.1	A	9.1	A
Lakeland Avenue & Chester Road	EB	37.0	E	19.5	C
	NB	0.1	A	0.1	A
Lakeland Avenue & LIRR North Parking Lot/Henry Street	EB	15.7	C	12.7	B
	WB	18.3	C	13.9	B
	NB	0.8	A	0.8	A
	SB	0.3	A	0.3	A
Railroad Avenue & Depot Street	EB	13.9	B	10.7	B
	NB	8.5	A	8.5	A
Railroad Avenue & Hiddink Street	WB	12.4	B	10.6	B
	NB	0.0		0.0	
	SB	3.1	A	3.1	A
Railroad Avenue & Center Street	EB	12.7	B	12.7	B
	NB	0.9	A	0.9	A

TABLE 14: EXISTING CONDITION LEVEL OF SERVICE SUMMARY -WITH AND WITHOUT CALIBRATION

Intersections		PM School Peak			
		Existing -Without Calibration		Existing – With Calibration	
Intersection	**Approach/Movt.**	**Delay**	**LOS**	**Delay**	**LOS**
Lakeland Avenue & 11th Street	EB	22.5	C	22.5	C
	NB	10.3	B	10.3	B
Lakeland Avenue & Chester Road	EB	83.0	F	32.7	D
	NB	0.2	A	0.2	A
Lakeland Avenue & LIRR North Parking Lot/Henry Street	EB	23.1	C	20.1	C
	WB	24.6	C	20.4	C
	NB	0.2	A	0.2	A
	SB	0.5	A	0.5	A
Railroad Avenue & Depot Street	EB	25.6	D	21.4	D
	NB	3.8	A	3.8	A
Railroad Avenue & Hiddink Street	WB	26.3	D	18.9	C
	NB	0.0		0.0	
	SB	4.2	A	4.2	A
Railroad Avenue & Center Street	EB	28.9	D	34.0	D
	NB	2.1	A	2.1	A

From the review of Tables 13 and 14 above, the levels of service at the intersections with and without the calibration are comparable except for the eastbound Chester Road approach at the intersection of Lakeland Avenue and Chester Road that operate significantly better with the calibration. The results of the analyses show that the stop-controlled approaches of the intersections on the Lakeland Avenue/Railroad Avenue corridor except for Chester Road will operate at acceptable LOS D or better during the weekday AM and PM school peak hours with and without the calibration. Without the calibration the Chester Road approach operates at LOS E and F during the weekday School AM and PM peak hours respectively. With the calibration the Chester Road approach will operate at LOS C during the weekday school AM peak hour and at LOS D during the weekday school PM peak hour.

It was also noted during the field observations that there is a loop on the eastbound Chester Road approach tied to the traffic signal at the intersection of Lakeland Avenue and Gibbons Court capable of putting a call to the signal controller when there is a need for vehicles to exit Chester Road. Therefore, the synchro results for the intersection of Lakeland Avenue at Chester Road are very conservative as confirmed by the field delay measurements since the analyses did not take into consideration the effect of the loop. Hence, as supported by the field delay measurements, the operation of the eastbound Chester Road approach is better than presented in the traffic analyses.

Arterial Analyses and Measures of Effectiveness

Arterial analyses were conducted for the most critical corridor of the study area (Lakeland Avenue and Railroad Avenue) during the weekday AM and PM school peak to determine the operation of the entire corridor before and after the construction of the proposed project. In addition to the arterial analyses operational Measures of Effectiveness (MOEs) that display quantitative information about the performance of the intersections and network was provided. The MOEs include delays, stops, fuel consumption, queuing penalty, dilemma vehicles, emissions and performance index. The performance index is a combination of the delays and stops. The lower the performance index the better the operation of the corridor.

The following is a summary of the Existing Conditions arterial analyses and MOE's for the Lakeland Avenue/Railroad Avenue corridor for the existing conditions during the weekday AM and PM School peak hours.

TABLE 15: EXISTING CONDITIONS ARTERIAL LEVEL OF SERVICE ANALYSES – AM PEAK HOUR

Arterial	Cross Street	Flow Speed	Arterial Speed	Arterial LOS
Lakeland Avenue/ Railroad Avenue NB	Montauk Highway	30	7.9	F
	LIRR Crossing	30	25	B
	Manton Street	30	22.6	C
	Johnson Avenue	30	14.1	D
	Gibbons Court	30	27.6	B
	NYS Route 27 South Service Road	30	12.4	E
	NYS Route 27 North Service Road	30	13.8	E
	Overall	**30**	**19**	**C**
Lakeland Avenue/ Railroad Avenue SB	NYS Route 27 North Service Road	30	9.1	F
	NYS Route 27 South Service Road	30	13.8	E
	Gibbons Court	30	24.9	B
	Tariff Street	30	25.6	B
	Manton Street	30	19.7	C
	LIRR Crossing	30	24.4	B
	Montauk Highway	30	17.2	D
	Overall	**30**	**20.1**	**C**

TABLE 16: EXISTING CONDITIONS ARTERIAL LEVEL OF SERVICE ANALYSES – PM PEAK HOUR

Arterial	Cross Street	Flow Speed	Arterial Speed	Arterial LOS
Lakeland Avenue/ Railroad Avenue NB	Montauk Highway	30	6.7	F
	LIRR Crossing	30	22.7	C
	Manton Street	30	22.3	C
	Johnson Avenue	30	12.9	E
	Gibbons Court	30	27.7	B
	NYS Route 27 South Service Road	30	12.8	E
	NYS Route 27 North Service Road	30	13.4	E
	Overall	**30**	**18.2**	**C**
Lakeland Avenue/ Railroad Avenue SB	NYS Route 27 North Service Road	30	5.7	F
	NYS Route 27 South Service Road	30	9.7	F
	Gibbons Court	30	23.4	C
	Tariff Street	30	24.4	B
	Manton Street	30	17.3	D
	LIRR Crossing	30	19.9	C
	Montauk Highway	30	15.9	D
	Overall	**30**	**16.9**	**D**

From the review of the arterial analyses results, during the existing school peak condition, the northbound and southbound Lakeland Avenue/Railroad Avenue corridors operates at overall LOS C during the AM peak hour and at LOS D or better during the PM peak hour. Individual roadway segments within the corridor experience LOS ranging from B to F.

As stated previously Synchro analyses were also conducted for Lakeland Avenue/Railroad Avenue corridor to determine the network measures of effectiveness during the Existing Conditions. The following tables summarize the measures of effectiveness.

TABLE 17: EXISTING CONDITIONS MEASURES OF EFFECTIVENESS

Measure	AM Peak Hour	PM Peak Hour
Control Delay/Veh (s/v)	11	16
Queue Delay/Veh (s/v)	0	1
Total Delay/Veh (s/v)	11	16
Average Speed (mph)	19	16
Performance Index	45.9	94.5

FUTURE CONDITIONS

As part of this traffic impact study, the future No Build and Build conditions volumes were developed for each scenario. The proposed PDD will be constructed in six (6) phases. We are therefore conducting the traffic analyses for six (6) scenarios, one (1) for each phase. The following table summarizes the anticipated construction and build year for each phase.

TABLE 18: NO BUILD AND BUILD ANALYSES YEARS

Phase	Start	Duration	End	No Build Analysis Year	Build Analysis Year
Phase 1	06.01.2020	16 months	10.01.2021	2021	2021
Phase 2	04.01.2021	16 months	08.01.2022	2022	2022
Phase 3	02.01.2022	20 months	10.01.2023	2023	2023
Phase 4	04.01.2023	20 months	12.01.2024	2024	2024
Phase 5	06.01.2024	16 months	10.01.2025	2025	2025
Phase 6	04.01.2025	16 months	08.01.2026	2026	2026

Traffic analyses were conducted for both the No Build and Build Conditions to evaluate the traffic impact of the Development Scenario on the surrounding roadways. Both the No Build and Build conditions will be analyzed with and without other planned developments in the study area. Other Planned Developments is a term that refers to developments located near the project area that are currently under construction or in the planning stages. Traffic generated by these projects may significantly influence the operation of the study intersections and would not be represented in the collected field data.

No Build Conditions Without Other Planned Developments

The No Build Condition without other planned developments represents traffic conditions expected at the study area in a future year without the development of the proposed project and any other planned projects in the area. This analysis is used in the identification of project specific site impacts. One (1) No Build Condition without other planned projects was done for each phase, resulting in six (6) No Build Condition without other planned projects for both the school peak season and the summer peak season.

The No Build Condition without other planned development traffic volumes are estimated based on the increase in traffic due to general population growth and developments outside of the immediate study area.

Background Traffic Growth Rate

To develop the background traffic growth rate, Nelson & Pope considered the US census population projections, information developed for the New York Metropolitan Transportation Council's Best Practices Model (BPM) and the Suffolk County Comprehensive Plan 2035, and the 2009 Sunrise Highway Corridor Study.

- Based on the 2000 and 2010 US census data, the Sayville population grew from 16,735 to 16,853. This is a growth in population of 118 people over a 10-year period, which is equivalent to a 0.07% growth rate per year.

- Based on the Average Annual Growth Rate for Vehicle-Miles Travel (VMT) developed by NYMTC, the average annual growth rate for Suffolk County ranges from 0.37% to 0.71% depending on the functional classification of the roadway. Based on the functional classifications of roadways within the study area, the growth rate will either be 0.47% or 0.71%. We therefore used a growth factor of **0.59% per year** (an average of the 0.47% and 0.71% annual growth rates). The following table is a summary of the calculated growth factors for each phase based on the anticipated build year. The growth rate and census information utilized is contained in **Appendix F**.

TABLE 19: GROWTH RATES BY BUILD YEAR

Phase	No Build Analysis year	Growth rate
Phase 1	2021	1.8%
Phase 2	2022	2.4%
Phase 3	2023	3.0%
Phase 4	2024	3.6%
Phase 5	2025	4.3%
Phase 6	2026	4.9%

The No Build volumes for each phase were developed by applying the growth rate corresponding to the phase to the existing traffic volumes.

No Build Conditions with Other Planned Developments

The No Build Condition with other planned developments represents traffic conditions expected at the study area in a future year including other planned developments in the area without the development of the proposed project. This analysis is used in the identification of the combined impacts of the project and other planned developments in the area. One (1) No Build Condition with other planned projects was done for each phase, resulting in six (6) No Build Condition with other planned projects for both the school peak season and the summer peak season.

The No Build Condition with other planned development traffic volumes are estimated based on the following factors:

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

Other Planned Developments

The Town of Islip was contacted to obtain information on any planned developments in the area. As advised by the Town, the following proposed planned projects were included:

- **Ronkonkoma Hub** – This project is a Transit Oriented Development which is currently under construction in the vicinity of the Ronkonkoma Train Station generally bounded by Union Street to the north, Village Plaza Drive to the east; Ronkonkoma Avenue , Garrity Avenue and Hawkins Avenue to the east; and the railroad tracks of the Long Island Railroad to the south, in the hamlet of Ronkonkoma, Town of Brookhaven, Suffolk County, New York. The Ronkonkoma Hub TOD is a mix of residential, office, retail, medical office, hotel and restaurant uses. The project is under construction with an expected completion date of 2027. The 2027 completion year is beyond the 2026 completion year of the proposed project. However, to perform a conservative analysis, the Ronkonkoma Hub project traffic was included in the analyses of the final phase (Phase 6) of this project.

- **Islip Pines** – This project is a mixed-use development that is located on the north side of the NYS Route 27 North Service Road just west of Beacon Drive in the Town of Islip, Suffolk County, New York. The Islip Pines project is a mix of residential, office, retail, industrial/research, hotel and restaurant uses. Based on information obtained from Stonefield Engineering, the engineer preparing the traffic study for Islip Pines, Islip Pines is proposed to be constructed in two (2) phases:

    - Islip Pines Phase 1 will be completed in 2022 (2022 Build year) and comprise of 350 residential units, 214,660 SF of retail space and 51,218 SF of Civic space.

    - Islip Pines Phase 2 will be completed in 2027 (2027 Build year) and comprise of 818,130 SF of Industrial/Research space, 200-room Hotel, 277,140 SF of retail space and 302,820 SF of office space.

    The Island Hills project will be constructed in 6 phases with Build years of 2021, 2022, 2023, 2024, 2025 and 2026. Based on this phasing, Phase I of the Islip Pines project was included as a planned development in Phase 2 (2022), Phase 3(2023), Phase 4(2024), Phase 5(2025) and Phase 6(2026) of the proposed project. To perform a conservative analysis, a combination of Phases 1 and 2 of the Islip Pines projects was included the traffic analyses for Phase 6 of the proposed project. No other planned developments were considered under Phase 1 of the Island Hills project.

The trip generation estimates for these other planned projects contained in the Traffic Studies submitted to the Town of Islip and Brookhaven were combined with the ambient growth volumes at each of the study intersections during each peak hour to develop the No Build volumes. The No Build condition volumes for the weekday AM, weekday PM and Saturday midday peak hours for Phase 6 (full build out) of the proposed project with and without other planned developments are illustrated in Figures 9, 10, 11, 12,13, 14 and 16. The traffic volumes for the rest of the phases are contained in the volume distribution tables in **Appendix C**.

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JOB No.:	1630
CADD: Figures_2018 Analysis	
SCALE:	AS SHOWN

DRAWING TITLE:

AM NO BUILD WITH OPD SCHOOL PEAK

GREY BARN ISLAND HILLS

TOWN OF ISLIP

SAYVILLE, NY

DRAWING NUMBER:

FIG-10

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SCALE:	AS SHOWN

DRAWING TITLE:

PM NO BUILD WITH OPD SCHOOL PEAK

GREY BARN ISLAND HILLS

TOWN OF ISLIP
SAYVILLE, NY

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FIG-11

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CADD: Figures_2018 Analysis	
SCALE:	AS SHOWN

DRAWING TITLE:

SAT NO BUILD WITH OPD SCHOOL PEAK

GREY BARN ISLAND HILLS
TOWN OF ISLIP
SAYVILLE, NY

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FIG-12

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SCALE:	AS SHOWN

DRAWING TITLE:

AM NO BUILD WITH OPD SUMMER PEAK

GREY BARN ISLAND HILLS
TOWN OF ISLIP
SAYVILLE, NY

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FIG-13

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CADD: Figures_2018 Analysis	
SCALE:	AS SHOWN

DRAWING TITLE:

PM NO BUILD WITH OPD SUMMER PEAK

GREY BARN ISLAND HILLS
TOWN OF ISLIP
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FIG-14

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JOB No.:	1630
CADD: Figures_2018 Analysis	
SCALE:	AS SHOWN

DRAWING TITLE:

FRI NO BUILD WITH OPD SUMMER PEAK

GREY BARN ISLAND HILLS

TOWN OF ISLIP
SAYVILLE, NY

DRAWING NUMBER:

FIG-15

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DRAWING TITLE:

SAT NO BUILD WITH OPD SUMMER PEAK

GREY BARN ISLAND HILLS

TOWN OF ISLIP
SAYVILLE, NY

DRAWING NUMBER:

FIG-16

Build Condition

The Build Condition volumes for the study roadways and intersections represent the traffic volumes at these intersections and roadways after the construction and full operation of the proposed project. These volumes are developed by adding the estimated traffic generated by the proposed project to the No Build volumes reflecting project phasing. The site generated trips were assigned to the roadway network based on anticipated origin and destinations, the configuration and location of proposed site access points, the configuration of the existing roadway network, and prevailing traffic patterns.

As previously mentioned, two (2) No Build scenarios (with and without other planned developments) were developed for each phase of the project for both the school peak and summer seasons. Therefore, two (2) Build scenarios (with and without other planned developments).

Build Conditions Without Other Planned Developments

The Build Condition without other planned developments represents traffic conditions expected at the study area in a future year with the development of the proposed project but without the development of any other planned projects in the area. This analysis is used in the identification of project specific site impacts. One (1) Build Condition without other planned developments was done for each phase, resulting in six (6) Build Condition without other planned projects for both the school peak season and the summer peak season.

Build Conditions With Other Planned Developments

The Build Condition with other planned developments represents traffic conditions expected at the study area in a future year including other planned developments in the area with the development of the proposed project. This analysis is used in the identification of the combined impacts of the project and other planned developments in the area. One (1) Build Condition with other planned developments was done for each phase, resulting in six (6) Build Condition with other planned projects for both the school peak season and the summer peak season.

Proposed Development Details

The proposed project requires rezoning the site from its existing Residence AAA designation to a Planned Development District (PPD) zone to develop a 1,365-unit rental residential community. The proposed residential development will be constructed in six (6) phases as detailed in the following table:

TABLE 20: PROPOSED DEVELOPMENT	
Area	**Number of units**
Lot 1	138
Lot 2	222
Lot 3	318
Lot 4	289
Lot 5	213
Lot 6	185
Total Units	**1365**

Trip Generation

To identify the impacts each development phase will have on the Study Area roadways and Study Intersections, it is necessary to estimate the magnitude of traffic volume generated during the peak hours and to estimate the directional distribution of the generated traffic when traveling to and from the Study Area.

The trip generation estimates for the proposed development under each development phase were prepared utilizing data under Land Use Code 221- Multifamily Housing (Mid-Rise) from the ITE publication, *Trip Generation, Tenth Edition*. The ITE trip generation publication sets forth trip generation data obtained by traffic counts conducted at sites throughout the country. The ITE Trip Generation Handbook is a valuable reference for traffic studies, as it is by far the most comprehensive source of empirical data on traffic impacts for different land uses. The following Table summarizes the trip generation estimates for each lot on the site. **Appendix G** contains the trip generation worksheets.

TABLE 21: TRIP GENERATION FOR EACH SITE LOT							
Time Period	**Lot 1 (138 units)**	**Lot 2 (222 Units)**	**Lot 3 (318 units)**	**Lot 4 (289 units)**	**Lot 5 (213 units)**	**Lot 6 (185 units)**	**Total**
AM	13 enter	21 enter	29 enter	27 enter	20 enter	17 enter	127 enter
	37 exit	59 exit	85 exit	77 exit	57 exit	50 exit	365 exit
	50 total	**80** total	**114** total	**104** total	**77** total	**67** total	**492** total
PM	37 enter	60 enter	85 enter	77 enter	57 enter	49 enter	365 enter
	24 exit	38 exit	55 exit	50 exit	37 exit	32 exit	236 exit
	61 total	**98** total	**140** total	**127** total	**94** total	**81** total	**601** total
SATURDAY	30 enter	48 enter	69 enter	62 enter	46 enter	39 enter	294 enter
	31 exit	50 exit	71 exit	65 exit	48 exit	42 exit	307 exit
	61 total	**98** total	**140** total	**127** total	**94** total	**81** total	**601** total

As previously mentioned, traffic analyses were conducted for six (6) project development phases. These analyses will be cumulative from phase to phase. Phase 1 will analyze the traffic impact of the

construction of Lot 1, Phase 2 will analyze the traffic impacts of Lot 1 and Lot 2, etc. The following table is a summary of the anticipated trip generation for each of the six phases.

TABLE 22: TRIP GENERATION FOR EACH DEVELOPMENT PHASE

Time Period	Phase 1 Lot1 (138 units)	Phase 2 Lot1+Lot 2 (360 Units)	Phase 3 Lot 1+Lot 2 +Lot3 (678 units)	Phase 4 Lot 1+Lot 2 + Lot 3+Lot 4 (967 units)	Phase 5 Lot 1+Lot 2 +Lot 3+Lot 4 +Lot 5 (1180 units)	Phase 6 Lot 1+Lot 2 +Lot 3+Lot 4 +Lot 5+Lot 6 (1365 units)
AM	13 enter	34 enter	63 enter	90 enter	110 enter	127 enter
	37 exit	96 exit	181 exit	258 exit	315 exit	365 exit
	50 total	**130** total	**244** total	**348** total	**425** total	**492** total
PM	37 enter	97 enter	182 enter	259 enter	316 enter	365 enter
	24 exit	62 exit	117 exit	167 exit	204 exit	236 exit
	61 total	**159** total	**299** total	**426** total	**520** total	**601** total
SATURDAY	30 enter	78 enter	147 enter	209 enter	255 enter	294 enter
	31 exit	81 exit	152 exit	217 exit	265 exit	307 exit
	61 total	**159** total	**299** total	**426** total	**520** total	**601** total

As can be seen from Table 8 above, Phase 1is anticipated to generate 50, 61 and 61 trips during the AM, PM and Saturday peak hours, respectively, Phase 2 will generate 130, 159 and 159 trips during the AM, PM and Saturday peak hours, respectively, Phase 3 will generate 244, 299 and 299 trips during the AM, PM and Saturday peak hours, respectively, Phase 4 will generate 348, 426 and 426 trips during the AM, PM and Saturday peak hours, respectively, Phase 5 will generate 425, 520 and 520 trips during the AM, PM and Saturday peak hours, respectively and Phase 6 will generate 492, 601 and 601 trips during the AM, PM and Saturday peak hours, respectively.

Modal Split

The area subject to the proposed PDD would be within 1.5 miles of the Sayville stop of the Branch of the Long Island Railroad. Therefore, based on the recommendation of ITE there is a need to adjust the trip generation totals to reflect the availability of transit. For instance, the decision to drive to work rather than take the bus, train or walk is heavily influenced by the modal choices one has around them. In order to adjust the trip generation for the use of transit in the Study Area, Journey to Work data (2012-2016 American Community Survey 5-Year Estimates) Sayville was obtained and reviewed to determine the percentage of transit use within the Study Area. Based on review of the data, it was determined that approximately 8% of the Sayville population use public transportation or walk to work.

The applicant is also looking into providing private transit services for residents of the development. These services are intended as an incentive to utilize mass transit and reduce the number of vehicles on the roadways and intersections in the vicinity of the site. The applicant is currently working on initiating a pilot transit program on the new development they own in Amityville, Suffolk County, New York. However, to perform a conservative analysis, no credit was taken for the provision of private transit for the development and the potential use of public transit by residents of the proposed development.

Trip Distribution and Assignment

To develop the weekday and weekend directional trip distribution and assignment for the proposed project the following documents were reviewed:

- US Census data for Town of Islip and Sayville
- The Suffolk County Comprehensive Plan 2035
- The New York Metropolitan Transportation Council (NYMTC) Regional Transportation Plan – Plan 2045

Based on the review of these documents, the Journey-To-Work Census data for the Town of Islip and Sayville was utilized to determine the percent distribution of traffic. The Journey-To-work data from the following sources was utilized:

- Sayville CDP Journey-To-Work Data from the US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.
- Sayville CDP Journey-To-Work Day from the NYS Department of Transportation Planning and Strategic Group Analysis and Forecasting Bureau – Journey -To-Work Selection Program 2000
- Islip Town Journey-To-Work Data from the US Census Bureau, 2009-2013 American Community Survey 5-Year Estimates.

The trip distribution was developed by averaging the percent distributions estimated for the Town of Islip and Sayville based on the Journey-To-Work data obtained for residents of Sayville and Islip. The anticipated routes taken to work by residents of the proposed residential development during weekdays were determined using Google Maps direction tools. The Saturday trip distribution was developed with the assumption that a significant amount of the weekend trips is shopping and recreational trips and not work related. Therefore, the weekday trip distribution was adjusted to reflect more people traveling to downtown Sayville and other shopping and recreational destinations. The following tables are a summary of the average anticipated trip distributions for the proposed residential development. Detailed trip distribution calculations and data used for development of the trip distribution are contained in **Appendix G.**

TABLE 23: WEEKDAY TRIP DISTRIBUTION

Travel Route	Distribution Sayville 2012-2016 Journey-To-Work data	Distribution Sayville 2000 Journey-To-Work data	Distribution Islip 2009-2013 Journey-To- Work data	Average Distribution
To Lakeland Avenue NB	40.0%	39.6%	34.7%	38%
Lakeland Avenue NB to NYS Route 27 EB	18.0%	19.7%	13.2%	17%
Lakeland Avenue NB to NYS Route WB	33.0%	22.4%	36.6%	31%
Lakeland Avenue SB to Railroad Avenue	3.0%	14.8%	12.00%	10%
Terry Road to Cherry Avenue	6.0%	3.4%	3.5%	4%
Total	**100%**	100.0%	**100%**	100%

TABLE 24: WEEKEND TRIP DISTRIBUTION

Travel Route	Distribution Sayville 2012-2016 Journey-To-Work data	Distribution Sayville 2000 Journey-To-Work data	Distribution Islip 2009-2013 Journey-To- Work data	Average Distribution
To Lakeland Avenue NB	30.0%	30.0%	28.0%	29%
Lakeland Avenue NB to NYS Route 27 EB	22.0%	22.3%	15.2%	20%
Lakeland Avenue NB to NYS Route WB	28.0%	22.4%	26.6%	26%
Lakeland Avenue SB to Railroad Avenue	11.0%	19.8%	19.70%	17%
Terry Road to Cherry Avenue	9.0%	5.5%	10.5%	8%
Total	**100%**	100.0%	**100%**	100%

The trips generated by each phase were then assigned to each traffic movement at the study intersections based on the percent distribution. The site generated traffic for each phase was then added to the corresponding No Build Volumes to generate the corresponding Build Volumes. The site generated traffic volumes for the weekday AM, PM/Friday PM and Saturday midday peak hours for Phase 6 (full build out) are shown on Figures 17, 18, and 19 and respectively. The Phase 6 Build Volumes (full build out) with other planned developments for the school weekday AM, PM, and Saturday midday peak hours and for the summer weekday AM, PM, Friday PM and Saturday midday peak hours are shown on Figures 20, 21, 22, 23, 24, 25 and 26 respectively. The trip distributions, site generated traffic volumes, No Build and Build volumes for the rest of the phases are contained in the traffic volume tables in **Appendix C**.

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DATE:	11/1/18
JOB No.:	1630
CADD: Figures_2018 Analysis	
SCALE:	AS SHOWN

DRAWING TITLE:

SITE TRIP GEN. AM SCHOOL PEAK

GREY BARN ISLAND HILLS
TOWN OF ISLIP
SAYVILLE, NY

DRAWING NUMBER:

FIG-17

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DATE:	11/1/18
JOB No.:	1630
CADD: Figures_2018 Analysis	
SCALE:	AS SHOWN

DRAWING TITLE:

SITE TRIP GEN. PM SCHOOL PEAK

GREY BARN ISLAND HILLS
TOWN OF ISLIP
SAYVILLE, NY

DRAWING NUMBER:

FIG-18

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JOB No.:	1630
CADD: Figures_2018 Analysis	
SCALE:	AS SHOWN

DRAWING TITLE:

SITE TRIP GEN. SAT SCHOOL PEAK

GREY BARN ISLAND HILLS
TOWN OF ISLIP
SAYVILLE, NY

DRAWING NUMBER:

FIG-19

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DATE:	11/1/18
JOB No.:	1630
CADD: Figures_2018 Analysis	
SCALE:	AS SHOWN

DRAWING TITLE:

AM BUILD WITH OPD SCHOOL PEAK

GREY BARN ISLAND HILLS
TOWN OF ISLIP
SAYVILLE, NY

DRAWING NUMBER:

FIG-20

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CHK'D BY:	OSB
DATE:	11/1/18
JOB No.:	1630
CADD: Figures_2018 Analysis	
SCALE:	AS SHOWN

DRAWING TITLE:

PM BUILD WITH OPD SCHOOL PEAK

GREY BARN ISLAND HILLS
TOWN OF ISLIP
SAYVILLE, NY

DRAWING NUMBER:

FIG-21

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DATE:	11/1/18
JOB No.:	1630
CADD: Figures_2018 Analysis	
SCALE:	AS SHOWN
DRAWING TITLE:	SAT BUILD WITH OPD SCHOOL PEAK GREY BARN ISLAND HILLS TOWN OF ISLIP SAYVILLE, NY
DRAWING NUMBER:	FIG-22

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CADD: Figures_2018 Analysis	
SCALE:	AS SHOWN

DRAWING TITLE:

AM BUILD WITH OPD SUMMER PEAK

GREY BARN ISLAND HILLS

TOWN OF ISLIP

SAYVILLE, NY

DRAWING NUMBER:

FIG-23

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CHK'D BY:	OSB
DATE:	11/1/18
JOB No.:	1630
CADD: Figures_2018 Analysis	
SCALE:	AS SHOWN

DRAWING TITLE:

PM BUILD WITH OPD SUMMER PEAK

GREY BARN ISLAND HILLS
TOWN OF ISLIP
SAYVILLE, NY

DRAWING NUMBER:

FIG-24

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JOB No.:	1630
CADD: Figures_2018 Analysis	
SCALE:	AS SHOWN

DRAWING TITLE:

FRI BUILD WITH OPD SUMMER PEAK

GREY BARN ISLAND HILLS

TOWN OF ISLIP

SAYVILLE, NY

DRAWING NUMBER:

FIG-25

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DATE:	11/1/18
JOB No.:	1630
CADD: Figures_2018 Analysis	
SCALE:	AS SHOWN

DRAWING TITLE:

SAT BUILD WITH OPD SUMMER PEAK

GREY BARN ISLAND HILLS

TOWN OF ISLIP
SAYVILLE, NY

DRAWING NUMBER:

FIG-26

SHEET: 1 OF 1

Traffic Analysis

To identify the impacts created by each phase of the proposed project, capacity analyses were conducted at the study intersections for the No Build and Build Conditions during the weekday AM, PM and Saturday midday peak hours for the school peak season and during the weekday AM, PM, Friday PM and Saturday midday during summer season. The results of the capacity analyses for the No Build and Build Conditions were compared to determine the impact that will be created at the study intersections for each phase. Tables summarizing the No Build and Build Conditions levels of service results were prepared and included in **Appendix I** of the report. The changes in levels of service from the No Build to the Build conditions were then compared to determine where there was an increase in LOS that is considered a significant impact according to the Town's Subdivision and Land Development Regulations, the criteria for determining impacts. Mitigations were then applied to specific intersections to improve the identified significant impacts. The capacity analyses were conducted at the Study intersections for mitigated conditions and are reported in Tables contained in **Appendix I** of the report. A copy of the determination of significant impact from the Town's Subdivision and Land Development Regulations (SEQR manual) is also contained in **Appendix I**.

Phase 1 – Traffic Analyses

Signalized Intersections

The capacity analysis results at the signalized intersections during the analyzed peak periods for both the school peak and summer seasons are discussed below:

Smithtown Avenue at NYS Route 27 North Service Road

During the No Build school peak condition, the signalized intersection of Smithtown Avenue and NYS Route 27 North Service Road operates at overall LOS E, D and B during the AM, PM and Saturday midday peak hours respectively. Individual movements experience LOS ranging from A to E. During the Build school peak condition, the intersection will continue to operate at No Build LOS during the AM, PM and Saturday midday peak periods.

During the No Build summer peak condition, the signalized intersection of Smithtown Avenue and NYS Route 27 North Service Road operates at overall LOS B, C, D and B during the AM, PM, Friday PM and Saturday midday peak hours respectively. Individual movements experience LOS ranging from A to E. During the Build summer peak condition, the intersection will continue to operate at No Build LOS during the AM, PM, Friday PM and Saturday midday peak periods.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay during all analyzed peak hours for both the school peak and summer seasons do not result in a significant impact. Therefore, no mitigation measures are required at this intersection under Phase 1 of the project.

Smithtown Avenue at NYS Route 27 South Service Road

During the No Build school peak and summer conditions, the signalized intersection of Smithtown Avenue and NYS Route 27 South Service Road operates at overall LOS B during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to C. During the Build school peak and summer conditions, the intersection will continue to operate at No Build LOS during the AM, PM, Friday PM and Saturday midday peak periods.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay during all analyzed peak hours for both the school peak and summer seasons do not result in a significant impact. Therefore, no mitigation measures are required at this intersection under Phase 1 of the project.

Lakeland Avenue at NYS Route 27 North Service Road

During the No Build school peak condition, the signalized intersection of Lakeland Avenue and NYS Route 27 North Service Road operates at overall LOS D, F and C during the AM, PM and Saturday midday peak hours respectively. Individual movements experience LOS ranging from A to F. During the Build school peak condition, the intersection will continue to operate at No Build LOS during the AM, PM and Saturday midday peak periods with minor increase in delays.

During the No Build summer peak condition, the signalized intersection of Lakeland Avenue and NYS Route 27 North Service Road operates at overall LOS C, D, E and C during the AM, PM, Friday PM and Saturday midday peak hours respectively. Individual movements experience LOS ranging from A to F. During the Build summer peak condition, the intersection will continue to operate at No Build LOS during the AM, PM and Saturday midday peak periods. During the Friday PM peak hour, the overall LOS changes from LOS E to LOS F with an increase in delay of 0.8 seconds, which is within the allowable increase in overall LOS from an E level of service to and an F level of service. However, the southbound approach experiences a LOS change from E to F with an increase in delay of 3.8 seconds, which is considered a significant impact. However, minor signal timing adjustments have been performed to eliminate this impact.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay during all analyzed peak hours for both the school peak and summer seasons can be accommodated with a minor signal timing adjustment for the summer Friday PM peak hour, eliminating any significant impacts. Therefore, no mitigation measures are required at this intersection under Phase 1 of the project.

Lakeland Avenue at NYS Route 27 South Service Road

During the No Build school peak and summer conditions, the signalized intersection of Lakeland Avenue and NYS Route 27 South Service Road operates at overall LOS C during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to D. During the Build school peak and summer conditions, the intersection will continue to operate at No Build LOS during the AM, PM, Friday PM and Saturday midday peak periods.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay during all analyzed peak hours for both the school peak and summer seasons do not result in a significant impact. Therefore, no mitigation measures are required at this intersection under Phase 1 of the project.

Johnson Avenue at NYS Route 27 North Service Road

During the No Build school peak condition, the signalized intersection of Johnson Avenue and NYS Route 27 North Service Road operates at overall LOS F, E and C during the AM, PM and Saturday midday peak hours respectively. Individual movements experience LOS ranging from B to F. During the Build school peak condition, the intersection will continue to operate at No Build LOS during the AM, PM and Saturday midday peak periods.

During the No Build summer peak condition, the signalized intersection of Johnson Avenue and NYS Route 27 North Service Road operates at overall LOS C during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from B to E. During the Build summer peak condition, the intersection will continue to operate at No Build LOS during the AM, Friday PM and Saturday midday peak periods. During the PM peak hour, the overall LOS changes from LOS C to LOS D with an increase in delay of 1.7 seconds, which is with the allowable increase in overall or approach LOS from a C level of service to and a D level of service.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay during all analyzed peak hours for both the school peak and summer seasons do not result in a significant impact. Therefore, no mitigation measures are required at this intersection under Phase 1 of the project.

Johnson Avenue at NYS Route 27 South Service Road

During the No Build school peak and summer conditions, the signalized intersection of Johnson Avenue and NYS Route 27 South Service Road operates at overall LOS C or better during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to D. During the Build school peak and summer conditions, the intersection will continue to operate at No Build LOS during the AM, PM, Friday PM and Saturday midday peak periods.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay for during all analyzed peak hours for both the school peak and summer seasons do not result in a significant impact. Therefore, no mitigation measures are required at this intersection under Phase 1 of the project.

Lakeland Avenue at Gibbons Court

During the No Build school peak and summer conditions, the signalized intersection of Lakeland Avenue at Gibbons Court operates at overall LOS A during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to C. The main access to the proposed project will be constructed on Lakeland Avenue directly opposite Gibbons Court to form the eastbound leg of the intersection. The east site access approach will be designed to provide a shared through/left turn lane and an exclusive right turn lane. During the Build school peak and summer conditions, the

intersection will operate at overall LOS B or better with all movements continuing to operate at LOS ranging from A to C during the AM, PM, Friday PM and Saturday midday peak periods. Figure 27 shows the signalized site driveway before and after the construction of the proposed project.

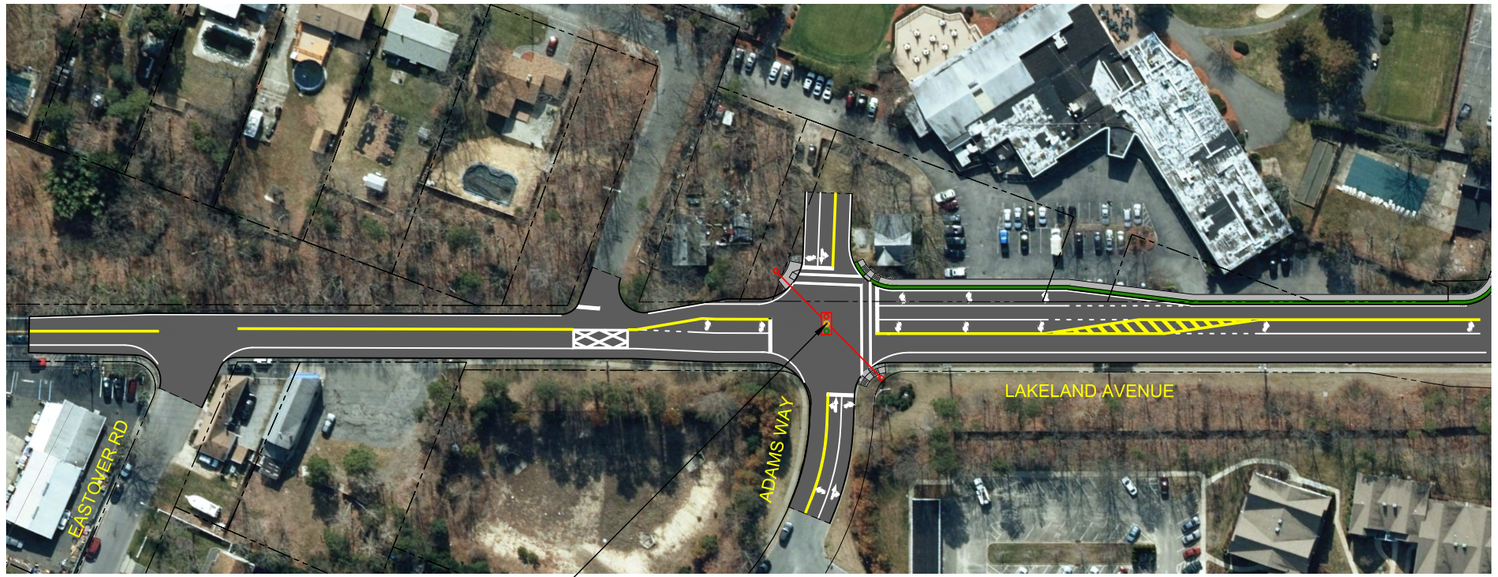
Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay during all analyzed peak hours for both the school peak and summer seasons do not result in a significant impact. Therefore, no mitigation measures are required at this intersection under Phase 1 of the project.

60 0 30 60 120

GRAPHIC SCALE
(IN FEET)
1 INCH = 60 FEET

NORTH

EXISTING CONDITIONS



No.	DATE	REVISION	BY:
-	-	-	-/-

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PLAINVIEW, NEW YORK

DWN. BY:	EL
CHK'D BY:	RS
DATE:	11/6/18
JOB No.:	16130
CADD:	CONCEPT PLAN
SCALE:	AS SHOWN

DRAWING TITLE:
FIGURE 27
LAKELAND AVENUE AT SITE ACCESS
GREY BARN
AT ISLAND HILLS

DRAWING NUMBER:
FIG - 27

SHEET: 1 OF 1

Lakeland Avenue at Tariff Street/Johnson Avenue

During the No Build school peak and summer conditions, the signalized intersection of Lakeland Avenue at Tariff Street/Johnson Avenue operates at overall LOS D or better during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to F. During the Build school peak and summer conditions, the intersection will continue to operate at No Build LOS during the AM, PM, Friday PM and Saturday midday peak periods.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay for during all analyzed peak hours for both the school peak and summer seasons do not result in a significant impact. Therefore, no mitigation measures are required at this intersection under Phase 1 of the project.

Lakeland Avenue at Manton Street

During the No Build school peak and summer conditions, the signalized intersection of Lakeland Avenue at Manton Street operates at overall LOS B or better during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to C. During the Build school peak and summer conditions, the intersection will continue to operate at No Build LOS during the AM, PM, Friday PM and Saturday midday peak periods.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay during all analyzed peak hours for both the school peak and summer seasons do not result in a significant impact. Therefore, no mitigation measures are required at this intersection under Phase 1 of the project.

Montauk Highway at Brook Street

During the No Build school peak and summer conditions, the signalized intersection of Montauk Highway at Brook Street operates at overall LOS A during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to D. During the Build school peak and summer conditions, the intersection will continue to operate at No Build LOS during the AM, PM, Friday PM and Saturday midday peak periods.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay during all analyzed peak hours for both the school peak and summer seasons do not result in a significant impact. Therefore, no mitigation measures are required at this intersection under Phase 1 of the project.

Montauk Highway at Cherry Avenue

During the No Build school peak and summer conditions, the signalized intersection of Montauk Highway at Cherry Avenue operates at overall LOS B or better during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to D. During the Build school peak and summer conditions, the intersection will continue to operate at No Build LOS during the AM, PM, Friday PM and Saturday midday peak periods.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay during all analyzed peak hours for both the school peak and summer seasons do not result in a significant impact. Therefore, no mitigation measures are required at this intersection under Phase 1 of the project.

Montauk Highway at Greene Avenue

During the No Build school peak and summer conditions, the signalized intersection of Montauk Highway at Greene Avenue operates at overall LOS B during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to E. During the Build school peak and summer conditions, the intersection will continue to operate at No Build LOS during the AM, PM, Friday PM and Saturday midday peak periods.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay during all analyzed peak hours for both the school peak and summer seasons do not result in a significant impact. Therefore, no mitigation measures are required at this intersection under Phase 1 of the project.

Montauk Highway at Gillette Avenue/Railroad Avenue

During the No Build school peak condition, the signalized intersection of Montauk Highway at Gillette Avenue/Railroad Avenue operates at overall LOS C during the AM, PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to F. During the Build school peak condition, the intersection will continue to operate at No Build LOS during the AM, PM and Saturday midday peak periods with minor increase in delays.

During the No Build summer peak condition, the signalized intersection of Montauk Highway at Gillette Avenue/Railroad Avenue operates at overall LOS C or better during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to F. During the Build summer peak condition, the intersection will continue to operate at No Build LOS during the AM, Friday PM and Saturday midday peak periods. During the PM peak hour, the southbound approach continued to operate at LOS E but experiences an increase in delay of 5.3 seconds, which is considered a significant impact. However, minor signal timing adjustments have been performed to eliminate this impact.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay during all analyzed peak hours for both the school peak and summer seasons can be accommodated with a minor signal timing adjustment for the summer peak hour, eliminating any significant impact. Therefore, no mitigation measures are required at this intersection under Phase 1 of the project.

Montauk Highway at Lincoln Avenue/Shopping Center

During the No Build school peak and summer conditions, the signalized intersection of Montauk Highway at Lincoln Avenue/Shopping Center operates at overall LOS C or better during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to

E. During the Build school peak and summer conditions, the intersection will continue to operate at No Build LOS during the AM, PM, Friday PM and Saturday midday peak periods.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay during all analyzed peak hours for both the school peak and summer seasons do not result in a significant impact. Therefore, no mitigation measures are required at this intersection under Phase 1 of the project.

Montauk Highway at Foster Avenue/Shopping Center

During the No Build school peak and summer conditions, the signalized intersection of Montauk Highway at Foster Avenue/Shopping Center operates at overall LOS C or better during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to E. During the Build school peak and summer conditions, the intersection will continue to operate at No Build LOS during the AM, PM, Friday PM and Saturday midday peak periods.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay during all analyzed peak hours for both the school peak and summer seasons do not result in a significant impact. Therefore, no mitigation measures are required at this intersection under Phase 1 of the project.

Montauk Highway at Hiddink Street/Hanson Place

During the No Build school peak and summer conditions, the signalized intersection of Montauk Highway Hiddink Street/Hanson Place operates at overall LOS C or better during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to D. During the Build school peak and summer conditions, the intersection will continue to operate at No Build LOS during the AM, PM, Friday PM and Saturday midday peak periods.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay during all analyzed peak hours for both the school peak and summer seasons do not result in a significant impact. Therefore, no mitigation measures are required at this intersection under Phase 1 of the project.

Smithtown Avenue at Terry Road/Island Boulevard

During the No Build school peak and summer conditions, the signalized intersection of Smithtown Avenue at Terry Road/Island Boulevard operates at overall LOS B or better during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to C. During the Build school peak and summer conditions, the intersection will continue to operate at No Build LOS during the AM, PM, Friday PM and Saturday midday peak periods.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay during all analyzed peak hours for both the school peak and summer seasons do not result in a significant impact. Therefore, no mitigation measures are required at this intersection under Phase 1 of the project.

Cherry Avenue at Brook Street

During the No Build school peak and summer conditions, the signalized intersection of Cherry Avenue at Brook Street operates at overall LOS B or better during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to B. During the Build school peak and summer conditions, the intersection will continue to operate at No Build LOS during the AM, PM, Friday PM and Saturday midday peak periods.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay during all analyzed peak hours for both the school peak and summer seasons do not result in a significant impact. Therefore, no mitigation measures are required at this intersection under Phase 1 of the project.

Unsignalized Intersections

The following unsignalized intersections and site access points were analyzed.

- Lakeland Avenue at 11th Street
- Lakeland Avenue at Chester Road
- Lakeland Avenue at Henry Street
- Railroad Avenue at Depot Street
- Railroad Avenue at Hiddink Street
- Railroad Avenue at Center Street
- Montauk Highway at Greeley Avenue/Shopping Center
- Terry Road at Bohemia Parkway
- Terry Road at St. Johns Street
- Terry Road at Sterling Place
- Terry Road Carrie Avenue
- Tariff St Cherry Avenue
- Tariff Street Chester Road
- NYS Route 27 South Service Road at Bohemia Parkway
- Bohemia Parkway at 11th Street
- Carrie Avenue at Marion Street
- Carrie Avenue at Sterling Place
- Lincoln Avenue at Hiddink Street
- 11th Street at Site Access
- Terry Road at Site Access

A summary of capacity analyses results at the unsignalized intersections during the analyzed peak periods for both the school peak and summer seasons is discussed below. Detailed LOS tables and synchro results are contained in **Appendix I**.

The LOS results for the unsignalized intersections without calibration of the existing model show that all the intersections operate at acceptable LOS D or better during both No Build and Build Conditions except for the northbound approach at intersections of Montauk Highway and Greeley Avenue/Shopping Center Driveway and eastbound approach of the intersection of Lakeland Avenue and Chester Road that operate at LOS E or F during both No Build Conditions. However, the increase in delay from the No Build to the Build condition is minimal and the traffic volumes from the minor approaches are less than 90 passenger car equivalents (PCEs) and will not trigger any significant impacts. With the calibration of the existing model, under the No Build condition, the eastbound Chester Road will operate at LOS C and E during AM and PM peak hours respectively. With the construction of Phase 1, the eastbound Chester Road approach will continue to operate at No Build LOS C and E during the AM and PM peak hours respectively.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay for during all analyzed peak hours for both the school peak and summer seasons do not result in a significant impact. Therefore, no mitigation measures are required at this intersection under Phase 1 of the project.

Arterial Analyses and Measures of Effectiveness Results for Phase 1

Arterial analyses were conducted for the most critical corridor of the study area (Lakeland Avenue and Railroad Avenue) during the weekday AM and PM school peak to determine the operation of the entire corridor before and after the construction of Phase 1 of the project. In addition to the arterial analyses operational Measures of Effectiveness (MOEs) that display quantitative information about the performance of the intersections and network were also provided for Phase 1.

The following is a summary of the arterial analyses and MOE's for the Lakeland Avenue/Railroad Avenue corridor for the No Build and Build Phase 1 conditions during the weekday AM and PM School peak hours.

TABLE 25: ARTERIAL LEVEL OF SERVICE ANALYSES PHASE 1 – AM PEAK HOUR

AM Peak Hour		No Build Condition			Build Condition -Phase 1		
Arterial	**Cross Street**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**
Lakeland Avenue/ Railroad Avenue NB	Montauk Highway	30	7.9	F	30	7.9	F
	LIRR Crossing	30	25	B	30	25	B
	Manton Street	30	22.4	C	30	22.5	C
	Johnson Avenue	30	13.9	E	30	13.9	E
	Gibbons Court	30	27.5	B	30	26.7	B
	NYS Route 27 South Service Road	30	12.3	E	30	12.4	E
	NYS Route 27 North Service Road	30	13.7	E	30	13.5	E
	Overall	**30**	**18.9**	**C**	**30**	**18.8**	**C**
Lakeland Avenue/ Railroad Avenue SB	NYS Route 27 North Service Road	30	9.1	F	30	9	F
	NYS Route 27 South Service Road	30	13.8	E	30	13.9	E
	Gibbons Court	30	24.8	B	30	22.7	C
	Tarriff Street	30	25.5	B	30	25.5	B
	Manton Street	30	19.6	C	30	19.6	C
	LIRR Crossing	30	24.3	B	30	24.3	B
	Montauk Highway	30	17.2	D	30	17.2	D
	Overall	**30**	**20.1**	**C**	**30**	**19.9**	**C**

TABLE 26: ARTERIAL LEVEL OF SERVICE ANALYSES PHASE 1– PM PEAK HOUR

Arterial	PM Peak Hour Cross Street	No Build Condition Flow Speed	No Build Condition Arterial Speed	No Build Condition Arterial LOS	Build Condition -Phase 1 Flow Speed	Build Condition -Phase 1 Arterial Speed	Build Condition -Phase 1 Arterial LOS
Lakeland Avenue/ Railroad Avenue NB	Montauk Highway	30	6.7	F	30	6.7	F
	LIRR Crossing	30	22.6	C	30	22.6	C
	Manton Street	30	22.2	C	30	22.2	C
	Johnson Avenue	30	12.5	E	30	12.5	E
	Gibbons Court	30	27.7	B	30	27.3	B
	NYS Route 27 South Service Road	30	12.8	E	30	12.7	E
	NYS Route 27 North Service Road	30	13.4	E	30	13.4	E
	Overall	**30**	**18.1**	**C**	**30**	**18**	**C**
Lakeland Avenue/ Railroad Avenue SB	NYS Route 27 North Service Road	30	5.3	F	30	5.1	F
	NYS Route 27 South Service Road	30	9.7	F	30	9.8	F
	Gibbons Court	30	23.3	C	30	20.2	C
	Tarriff Street	30	24.3	B	30	24.3	B
	Manton Street	30	17.1	D	30	17	D
	LIRR Crossing	30	19.7	C	30	19.7	C
	Montauk Highway	30	15.8	D	30	15.8	D
	Overall	**30**	**16.6**	**D**	**30**	**16.3**	**D**

TABLE 27: MEASURES OF EFFECTIVENESS PHASE 1

Measure	No Build Condition AM Peak Hour	No Build Condition PM Peak Hour	Build Condition -Phase 1 AM Peak Hour	Build Condition -Phase 1 PM Peak Hour
Control Delay/Veh (s/v)	11	16	12	17
Queue Delay/Veh (s/v)	0	1	0	1
Total Delay/Veh (s/v)	11	17	12	18
Average Speed (mph)	19	16	19	15
Performance Index	47.4	100	49.5	104.2

From the review of the arterial analyses results, during the No Build school peak condition, the northbound and southbound Lakeland Avenue/Railroad Avenue corridors operates at overall LOS C during the AM peak hour and at LOS D or better during the PM peak hour. Individual roadway segments within the corridor experience LOS ranging from B to F. The arterial will continue to operate at No Build LOS after the construction of Phase 1 of the project. The No Build measures of effectiveness will also be maintained after the completion of Phase 1 of the project.

Summary of Analyses Results for Phase 1

The analyses indicated that 34 of the 36 study intersections will continue to operate at No Build levels of Service (LOS) after the completion of the Phase 1 of the proposed project. Two intersections did

experience changes in LOS from the No Build to Build Conditions. However, with the minor signal adjustments that can be accommodated by the current signal controllers, these two intersections will continue to operate at No Build levels of better after the completion of Phase 1 of the project.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay experienced at the study intersections during all analyzed peak hours for both the school peak and summer seasons do not result in a significant impact. Therefore, no mitigation measures are required at these intersections under Phase 1 of the project.

The No Build arterial analyses and measures of effectiveness will be maintained after the construction of Phase 1 of the project.

It is therefore our professional opinion that the construction of Phase 1 of the proposed project will not significantly impact the operation of the intersections within and around the Study Area.

Phase 2 – Traffic Analyses

The analyses for Phase 2 were conducted for No Build and Build conditions with and without other planned developments for all analysis periods. The capacity analyses result at the signalized intersections for the No Build and Build conditions with and without other planned developments during the analyzed peak periods for both the school peak and summer seasons are discussed below:

Signalized Intersections (With and Without Other Planned Developments)
The results of the signalized intersections capacity analyses with and without other planned developments for Phase 2 are similar to those for Phase 1 of the project. Therefore, as concluded for Phase 1, no mitigation measures are required at the signalized intersections under Phase 2 of the project.

Unsignalized Intersections (With and Without Other Planned Developments)
The results of the unsignalized intersections capacity analyses with and without other planned developments for Phase 2 are similar to those for Phase 1 of the project except for the eastbound approach at the intersection of Railroad Avenue at Depot Street. The Depot Street eastbound approach continues to operate at LOS E under the Build without other planned development condition with an increase in delay of 7 seconds, 3 seconds above the acceptable increase based on the Town's regulations. Under the Build with other planned development condition, the LOS for the eastbound Depot Street approach changes from LOS E to LOS F with an increase in delay of 6.8 seconds, 3.8 seconds above the acceptable increase based on the Town's regulations. This increase occurred in only one peak period (Saturday Summer peak), out of the seven analyzed peak periods.

It is not unexpected to see results of LOS D, E or F for traffic at the stop-controlled approach of an unsignalized intersection with a major roadway. The availability of gaps in the traffic on the major roadway determines the level of delay that is assigned to the stop-controlled traffic. Higher volumes along major roadways result in fewer available gaps. The results of our field calibration show that the operation of unsignalized intersections along the Lakeland Avenue/Railroad Avenue are comparable to the results

in the synchro model with slightly lower delays except for the intersection of Lakeland Avenue and Chester Road that operate significantly better with the calibration.

Arterial Analyses and Measures of Effectiveness Results for Phase 2

Arterial analyses were conducted for the most critical corridor of the study area (Lakeland Avenue and Railroad Avenue) during the weekday AM and PM school peak to determine the operation of the entire corridor before and after the construction of Phase 2 of the project. In addition to the arterial analyses operational Measures of Effectiveness (MOEs) that display quantitative information about the performance of the intersections and network were also provided for Phase 2.

The following is a summary of the arterial analyses and MOE's for the Lakeland Avenue/Railroad Avenue corridor for the No Build and Build Phase 2 conditions during the weekday AM and PM School peak hours.

TABLE 28: ARTERIAL LEVEL OF SERVICE ANALYSES PHASE 2 – AM PEAK HOUR

AM Peak Hour		No Build Condition			Build Condition -Phase 2		
Arterial	**Cross Street**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**
Lakeland Avenue/ Railroad Avenue NB	Montauk Highway	30	7.9	F	30	7.9	F
	LIRR Crossing	30	25	B	30	25	B
	Manton Street	30	22.4	C	30	22.4	C
	Johnson Avenue	30	13.9	E	30	13.8	E
	Gibbons Court	30	27.5	B	30	26.2	B
	NYS Route 27 South Service Road	30	12.3	E	30	12.4	E
	NYS Route 27 North Service Road	30	13.7	E	30	13.1	E
	Overall	**30**	**18.9**	**C**	**30**	**18.6**	**C**
Lakeland Avenue/ Railroad Avenue SB	NYS Route 27 North Service Road	30	9.1	F	30	9	F
	NYS Route 27 South Service Road	30	13.8	E	30	14.1	D
	Gibbons Court	30	24.8	B	30	21.8	C
	Tariff Street	30	25.5	B	30	25.4	B
	Manton Street	30	19.6	C	30	19.5	C
	LIRR Crossing	30	24.3	B	30	24.3	B
	Montauk Highway	30	17.1	D	30	17.1	D
	Overall	**30**	**20**	**C**	**30**	**19.8**	**C**

TABLE 29: ARTERIAL LEVEL OF SERVICE ANALYSES PHASE 2 – PM PEAK HOUR

PM Peak Hour		No Build Condition			Build Condition -Phase 2		
Arterial	**Cross Street**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**
Lakeland Avenue/ Railroad Avenue NB	Montauk Highway	30	6.7	F	30	6.7	F
	LIRR Crossing	30	22.6	C	30	22.6	C
	Manton Street	30	22.2	C	30	22	C
	Johnson Avenue	30	12.5	E	30	12.2	E
	Gibbons Court	30	27.7	B	30	26.9	B
	NYS Route 27 South Service Road	30	12.8	E	30	12.8	E
	NYS Route 27 North Service Road	30	13.4	E	30	13.4	E
	Overall	**30**	**18.1**	**C**	**30**	**17.9**	**C**
Lakeland Avenue/ Railroad Avenue SB	NYS Route 27 North Service Road	30	5.3	F	30	4.6	F
	NYS Route 27 South Service Road	30	9.7	F	30	10	E
	Gibbons Court	30	23.3	C	30	19.5	C
	Tarriff Street	30	24.3	B	30	24.2	B
	Manton Street	30	16.9	D	30	16.8	D
	LIRR Crossing	30	19.7	C	30	19.6	C
	Montauk Highway	30	15.7	D	30	15.7	D
	Overall	**30**	**16.5**	**D**	**30**	**15.9**	**D**

TABLE 30: MEASURES OF EFFECTIVENESS PHASE 2

Measure	No Build Condition		Build Condition -Phase 2	
	AM Peak Hour	**PM Peak Hour**	**AM Peak Hour**	**PM Peak Hour**
Control Delay/Veh (s/v)	11	16	12	18
Queue Delay/Veh (s/v)	0	1	0	1
Total Delay/Veh (s/v)	11	17	12	19
Average Speed (mph)	19	16	18	15
Performance Index	47.5	100.6	52.4	111.8

From the review of the arterial analyses results, during the No Build school peak condition, the northbound and southbound Lakeland Avenue/Railroad Avenue corridors operates at overall LOS C during the AM peak hour and at LOS D or better during the PM peak hour. Individual roadway segments within the corridor experience LOS ranging from B to F. The arterial will continue to operate at No Build LOS after the construction of Phase 2 of the project. The No Build measures of effectiveness will also be maintained with minor increases in delays after the completion of Phase 2 of the project.

Summary of Analyses Results for Phase 2 With and Without Other Planned Developments

The results of the analyses for Phase 2 with and without other planned developments are similar to those for Phase 1. Hence, the finding for the two phases are the same.

The No Build arterial analyses and measures of effectiveness will be maintained after the construction of Phase 2 of the project.

It is therefore our professional opinion that the construction of Phase 2 of the proposed project with and without the consideration of other planned developments will not significantly impact the operation of the intersections within and around the Study Area.

Phase 3 – Traffic Analyses

The analyses for Phase 3 were conducted for No Build and Build conditions with and without other planned developments for all analysis periods. The capacity analyses result at the signalized intersections for the No Build and Build conditions with and without other planned developments during the analyzed peak periods for both the school peak and summer seasons are discussed below:

Signalized Intersections (With and Without Other Planned Developments)
The results of the signalized intersections capacity analyses with and without other planned developments for Phase 3 are similar to those for Phase 2 of the project with minor increases in delay that do not require improvements beyond the minor signal adjustments that are proposed under both Phase 1 and Phase 2. Therefore, as concluded for Phases 1 and 2, no mitigation measures are required at the signalized intersections under Phase 3 of the project.

Unsignalized Intersections (With and Without Other Planned Developments)
The results of the unsignalized intersections capacity analyses with and without other planned developments for Phase 3 are similar to those for Phase 2 with minor increases in delays that are not significantly higher than those identified in Phase 2.

Arterial Analyses and Measures of Effectiveness Results for Phase 3
Arterial analyses were conducted for the most critical corridor of the study area (Lakeland Avenue and Railroad Avenue) during the weekday AM and PM school peak to determine the operation of the entire corridor before and after the construction of Phase 3 of the project. In addition to the arterial analyses operational Measures of Effectiveness (MOEs) that display quantitative information about the performance of the intersections and network were also provided for Phase 3.

The following is a summary of the arterial analyses and MOE's for the Lakeland Avenue/Railroad Avenue corridor for the No Build and Build Phase 3 conditions during the weekday AM and PM School peak hours.

TABLE 31: ARTERIAL LEVEL OF SERVICE ANALYSES PHASE 3 – AM PEAK HOUR

AM Peak Hour		No Build Condition			Build Condition -Phase 3		
Arterial	**Cross Street**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**
Lakeland Avenue/ Railroad Avenue NB	Montauk Highway	30	7.9	F	30	7.8	F
	LIRR Crossing	30	25	B	30	25	B
	Manton Street	30	22.4	C	30	22.3	C
	Johnson Avenue	30	13.9	E	30	13.8	E
	Gibbons Court	30	27.4	B	30	25.6	B
	NYS Route 27 South Service Road	30	12.3	E	30	12.4	E
	NYS Route 27 North Service Road	30	13.7	E	30	12.7	E
	Overall	**30**	**18.9**	**C**	**30**	**18.4**	**C**
Lakeland Avenue/ Railroad Avenue SB	NYS Route 27 North Service Road	30	9.1	F	30	8.9	F
	NYS Route 27 South Service Road	30	13.9	E	30	14.1	D
	Gibbons Court	30	24.8	B	30	20.9	C
	Tariff Street	30	25.4	B	30	25.3	B
	Manton Street	30	19.5	C	30	19.4	C
	LIRR Crossing	30	24.3	B	30	24.3	B
	Montauk Highway	30	17.2	D	30	17.4	D
	Overall	**30**	**20**	**C**	**30**	**19.7**	**C**

TABLE 32: ARTERIAL LEVEL OF SERVICE ANALYSES PHASE 3 – PM PEAK HOUR

PM Peak Hour		No Build Condition			Build Condition -Phase 3		
Arterial	**Cross Street**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**
Lakeland Avenue/ Railroad Avenue NB	Montauk Highway	30	6.7	F	30	6.7	F
	LIRR Crossing	30	22.6	C	30	22.5	C
	Manton Street	30	22.1	C	30	21.9	C
	Johnson Avenue	30	12.3	E	30	11.8	E
	Gibbons Court	30	27.7	B	30	26	B
	NYS Route 27 South Service Road	30	12.7	E	30	12.6	E
	NYS Route 27 North Service Road	30	13.4	E	30	13.3	E
	Overall	**30**	**18.1**	**C**	**30**	**17.6**	**D**
Lakeland Avenue/ Railroad Avenue SB	NYS Route 27 North Service Road	30	5.1	F	30	4.1	F
	NYS Route 27 South Service Road	30	9.7	F	30	10.1	E
	Gibbons Court	30	23.2	C	30	16.7	D
	Tariff Street	30	24.2	B	30	24.1	B
	Manton Street	30	16.8	D	30	16.6	D
	LIRR Crossing	30	19.7	C	30	19.5	C
	Montauk Highway	30	15.7	D	30	15.6	D
	Overall	**30**	**16.4**	**D**	**30**	**15.2**	**D**

TABLE 33: MEASURES OF EFFECTIVENESS PHASE 3

Measure	No Build Condition		Build Condition -Phase 3	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Control Delay/Veh (s/v)	11	17	13	20
Queue Delay/Veh (s/v)	0	1	0	1
Total Delay/Veh (s/v)	11	18	13	20
Average Speed (mph)	19	15	18	14
Performance Index	48.1	103.6	56	124.3

From the review of the arterial analyses results, during the No Build school peak condition, the northbound and southbound Lakeland Avenue/Railroad Avenue corridors operates at overall LOS C during the AM peak hour and at LOS D or better during the PM peak hour. Individual roadway segments within the corridor experience LOS ranging from B to F. The arterial will continue to operate at No Build LOS after the construction of Phase 3 of the project. The No Build measures of effectiveness will also be maintained with minor increases in delays after the completion of Phase 3 of the project.

Summary of Analyses Results for Phase 3 With and Without Other Planned Developments

The results of the analyses for Phase 3 with and without other planned developments are similar to those for Phases 1 and 2. Hence, the finding for Phases 1, 2 and 3 are the same.

The No Build arterial analyses and measures of effectiveness will be maintained after the construction of Phase 3 of the project.

It is therefore our professional opinion that the construction of Phase 3 of the proposed project with and without the consideration of other planned developments will not significantly impact the operation of the intersections within and around the Study Area.

Phase 4 – Traffic Analyses

Signalized Intersections (With and Without Other Planned Developments)

The analyses for Phase 4 were conducted for No Build and Build conditions with and without other planned developments for all analysis periods. The capacity analyses result at the signalized intersections for the No Build and Build conditions with and without other planned developments during the analyzed peak periods for both the school peak and summer seasons are discussed below:

The results of the capacity analyses with and without other planned developments for Phase 4 for the signalized intersections, except for the intersection of Lakeland Avenue at NYS Route 27 North Service Road, are similar to those for Phase 3 of the project with minor increases in delay that do not require improvements beyond the minor signal adjustments that are proposed under Phases 1, 2 and 3. Therefore, as concluded for Phase 3, no mitigation measures are required at these signalized intersections under Phase 4 of the project except for the intersection of Lakeland Avenue at NYS Route 27 North Service

Road. Mitigation measures have been provided for the intersection of Lakeland Avenue at NYS Route 27 North Service Road. The following is a summary of the capacity analyses for the signalized intersection that required mitigations under Phase 4 of the proposed project.

Lakeland Avenue at NYS Route 27 North Service Road

During the No Build school peak condition, the signalized intersection of Lakeland Avenue and NYS Route 27 North Service Road operates at overall LOS D, F and C during the AM, PM and Saturday midday peak hours respectively. Individual movements experience LOS ranging from A to F. During the Build school peak condition, the intersection will continue to operate at No Build LOS during the AM, PM and Saturday midday peak periods. However, the delay on the southbound approach increases by 32 seconds and the overall intersection delay increases by 9 seconds during the PM peak hour. These increases in delay are considered significant impacts and hence will require mitigation.

During the No Build summer peak condition, the signalized intersection of Lakeland Avenue and NYS Route 27 North Service Road operates at overall LOS C, E, F and C during the AM, PM, Friday PM and Saturday midday peak hours respectively. Individual movements experience LOS ranging from A to F. During the Build summer peak condition, the intersection will continue to operate at No Build LOS during the AM, PM, Friday PM and Saturday midday peak periods. However, the southbound approach experiences an increase in delay of more than 29 seconds for both the PM and Friday PM peak periods. The overall intersection delay also increased by more than 9 seconds during the PM and the Friday PM peak periods. These increases in delay are considered significant impacts and hence will require mitigation.

In order to mitigate these impacts, the southbound approach of this intersection which currently provides an exclusive through lane, a shared through/right turn lane and an exclusive right turn lane will be redesigned to provide two exclusives through lanes and two exclusive right turn lanes. Minor signal timing adjustments will also be conducted for the northbound left turn phase. Figure 28 is a conceptual plan of the intersection of Lakeland Avenue at NYS Route 27 North Service Road with and without the improvement.

With this mitigation, the Town's Subdivision and Land Development Regulations' criteria for no significant impacts will be met during all the studied peak periods with and without other planned developments.

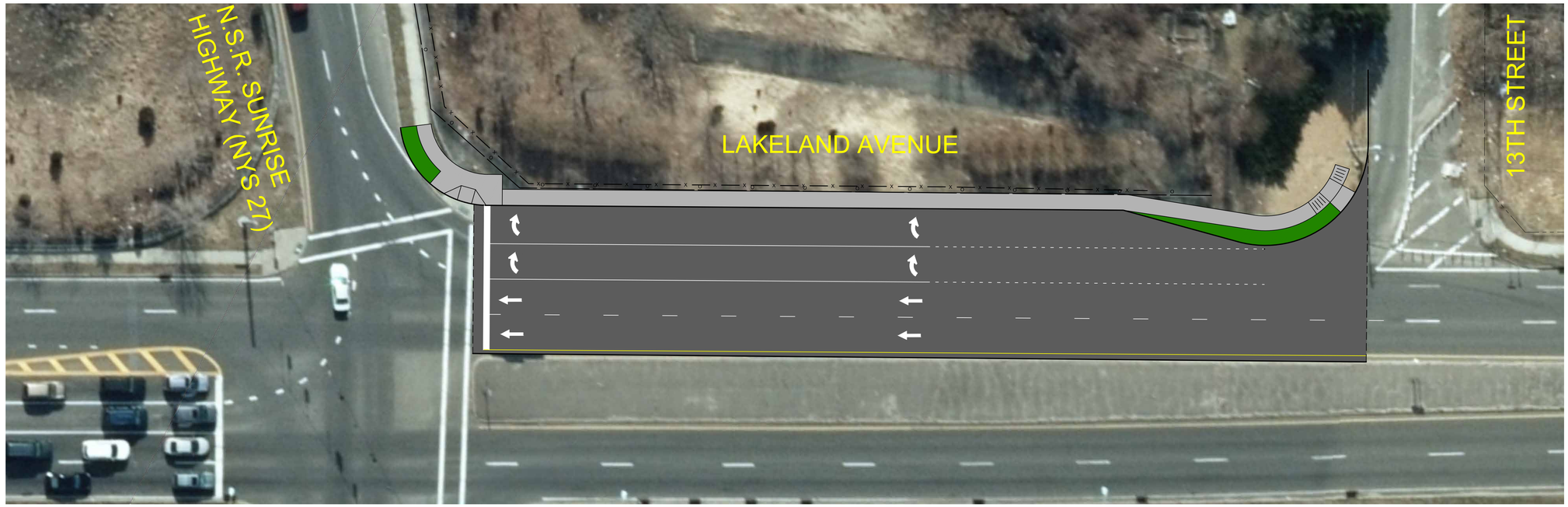
GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 INCH = 20 FEET

NORTH

EXISTING CONDITIONS



No.	DATE	REVISION	BY:
-	-	-	-/-

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PLAINVIEW, NEW YORK

DWN. BY:	EL
CHK'D BY:	RS
DATE:	11/6/18
JOB No.:	16130
CADD:	CONCEPT PLAN
SCALE:	AS SHOWN

DRAWING TITLE:

FIGURE 28

LAKELAND AVENUE AT NYS ROUTE 27 NORTH SERVICE RD
GREY BARN
AT ISLAND HILLS

DRAWING NUMBER:

FIG - 28

SHEET: 1 OF 1

Unsignalized Intersections

A summary of capacity analyses result at the unsignalized intersections during the analyzed peak periods for both the school peak and summer seasons is discussed below. Detailed LOS tables and Synchro results are contained in **Appendix I**.

The results of the unsignalized intersections capacity analyses with and without other planned developments for Phase 4 are similar to those for Phase 2 and 3 of the project except for the minor approaches to the intersections of Railroad Avenue at Henry Street and Railroad Ave at Hiddink Street. The increase in delay of the minor approaches to these intersections occurred in only two peak period (Saturday School and Summer peaks) out of the seven analyzed peak periods.

As previously mentioned, it is not unexpected to see results of LOS D, E or F for traffic at the stop-controlled approach of an unsignalized intersection with a major roadway. The availability of gaps in the traffic on the major roadway determines the level of delay that is assigned to the stop-controlled traffic. Higher volumes along major roadways result in fewer available gaps. The results of our field calibration show that the operation of unsignalized intersections along the Lakeland Avenue/Railroad Avenue corridor are comparable to the results in the synchro model with slightly lower delays except for the intersection of Lakeland Avenue and Chester Road that operate significantly better with the calibration.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay for during all analyzed peak hours for both the school peak and summer seasons do not result in a significant impact. Therefore, no mitigation measures are required at this intersection under Phase 4 of the project.

Arterial Analyses and Measures of Effectiveness Results for Phase 4

Arterial analyses were conducted for the most critical corridor of the study area (Lakeland Avenue and Railroad Avenue) during the weekday AM and PM school peak to determine the operation of the entire corridor before and after the construction of Phase 4 of the project. In addition to the arterial analyses operational Measures of Effectiveness (MOEs) that display quantitative information about the performance of the intersections and network were also provided for Phase 4.

The following is a summary of the arterial analyses and MOE's for the Lakeland Avenue/Railroad Avenue corridor for the No Build and Build Phase 3 conditions during the weekday AM and PM School peak hours.

TABLE 34: ARTERIAL LEVEL OF SERVICE ANALYSES PHASE 4 – AM PEAK HOUR

AM Peak Hour		No Build Condition			Build Condition -Phase 4		
Arterial	**Cross Street**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**
Lakeland Avenue/ Railroad Avenue NB	Montauk Highway	30	7.8	F	30	7.8	F
	LIRR Crossing	30	25	B	30	25	B
	Manton Street	30	22.4	C	30	22.3	C
	Johnson Avenue	30	13.8	E	30	13.7	E
	Gibbons Court	30	27.4	B	30	24.4	B
	NYS Route 27 South Service Road	30	12.3	E	30	12.2	E
	NYS Route 27 North Service Road	30	13.6	E	30	12.5	E
	Overall	**30**	**18.8**	**C**	**30**	**18**	**D**
Lakeland Avenue/ Railroad Avenue SB	NYS Route 27 North Service Road	30	9	F	30	8.9	F
	NYS Route 27 South Service Road	30	13.8	E	30	14.1	D
	Gibbons Court	30	24.8	B	30	20	C
	Tariff Street	30	25.4	B	30	25.3	B
	Manton Street	30	19.5	C	30	19.3	C
	LIRR Crossing	30	24.3	B	30	24.2	B
	Montauk Highway	30	17.5	D	30	17.3	D
	Overall	**30**	**20.1**	**C**	**30**	**19.6**	**C**

TABLE 35: ARTERIAL LEVEL OF SERVICE ANALYSES PHASE 4 – PM PEAK HOUR

PM Peak Hour		No Build Condition			Build Condition -Phase 4		
Arterial	**Cross Street**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**
Lakeland Avenue/ Railroad Avenue NB	Montauk Highway	30	6.7	F	30	6.7	F
	LIRR Crossing	30	22.6	C	30	22.4	C
	Manton Street	30	22	C	30	21.9	C
	Johnson Avenue	30	12	E	30	10.7	E
	Gibbons Court	30	27.6	B	30	25.8	B
	NYS Route 27 South Service Road	30	12.7	E	30	12.6	E
	NYS Route 27 North Service Road	30	13.4	E	30	13.1	E
	Overall	**30**	**18**	**D**	**30**	**17.3**	**D**
Lakeland Avenue/ Railroad Avenue SB	NYS Route 27 North Service Road	30	4.9	F	30	3.6	F
	NYS Route 27 South Service Road	30	9.7	F	30	10.2	E
	Gibbons Court	30	23.1	C	30	16.2	D
	Tarriff Street	30	24.2	B	30	24.2	B
	Manton Street	30	16.8	D	30	16.5	D
	LIRR Crossing	30	19.6	C	30	19.5	C
	Montauk Highway	30	15.7	D	30	15.6	D
	Overall	**30**	**16.2**	**D**	**30**	**14.7**	**D**

TABLE 36: MEASURES OF EFFECTIVENESS PHASE 4						
Measure	No Build Condition		Build Condition -Phase 4		Build Condition with Mitigation -Phase 4	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Control Delay/Veh (s/v)	11	18	13	21	12	14
Queue Delay/Veh (s/v)	0	1	0	1	0	1
Total Delay/Veh (s/v)	12	19	13	22	13	15
Average Speed (mph)	19	15	18	14	18	17
Performance Index	48.7	106.8	59.8	133.7	57.5	99.4

From the review of the arterial analyses results, during the No Build school peak condition, the northbound and southbound Lakeland Avenue/Railroad Avenue corridors operates at overall LOS C during the AM peak hour and at LOS D during the PM peak hour. Individual roadway segments within the corridor experience LOS ranging from B to F. The arterial will continue to operate at No Build LOS after the construction of Phase 4 of the project except for the AM peak hour that changes from LOS C to LOS D with minor reduction in arterial speed of 0.8 mph. The No Build measures of effectiveness will change. With the proposed mitigations for Phase 4 of the project, the performance indices will improve significantly.

Summary of Analyses Results for Phase 4

The analyses indicated that one signalized intersection will require physical improvements and the rest of the signalized intersection will continue to operate at No Build LOS with minor signal timing adjustments where necessary.

The proposed mitigations will improve both the operation of the arterial and the measures of effectiveness after the construction of Phase 4 of the project.

It is therefore our professional opinion that the construction of Phase 4 with the implantation of the physical improvements at the intersection of Lakeland Avenue and NYS Route 27 North Service, will not significantly impact the operation of the intersections within and around the Study Area.

Phase 5 – Traffic Analyses

Signalized Intersections (with and without other planned developments)

The analyses for Phase 5 were conducted for No Build and Build conditions with and without other planned developments for all analysis periods. The capacity analyses result at the signalized intersections for the No Build and Build conditions with and without other planned developments during the analyzed peak periods for both the school peak and summer seasons are discussed below:

The results of the capacity analyses with and without other planned developments for Phase 5 for the signalized intersections, except for the intersection of Lakeland Avenue at Tariff Street/Johnson Avenue, are similar to those for Phase 4 of the project with minor increases in delay that do not require

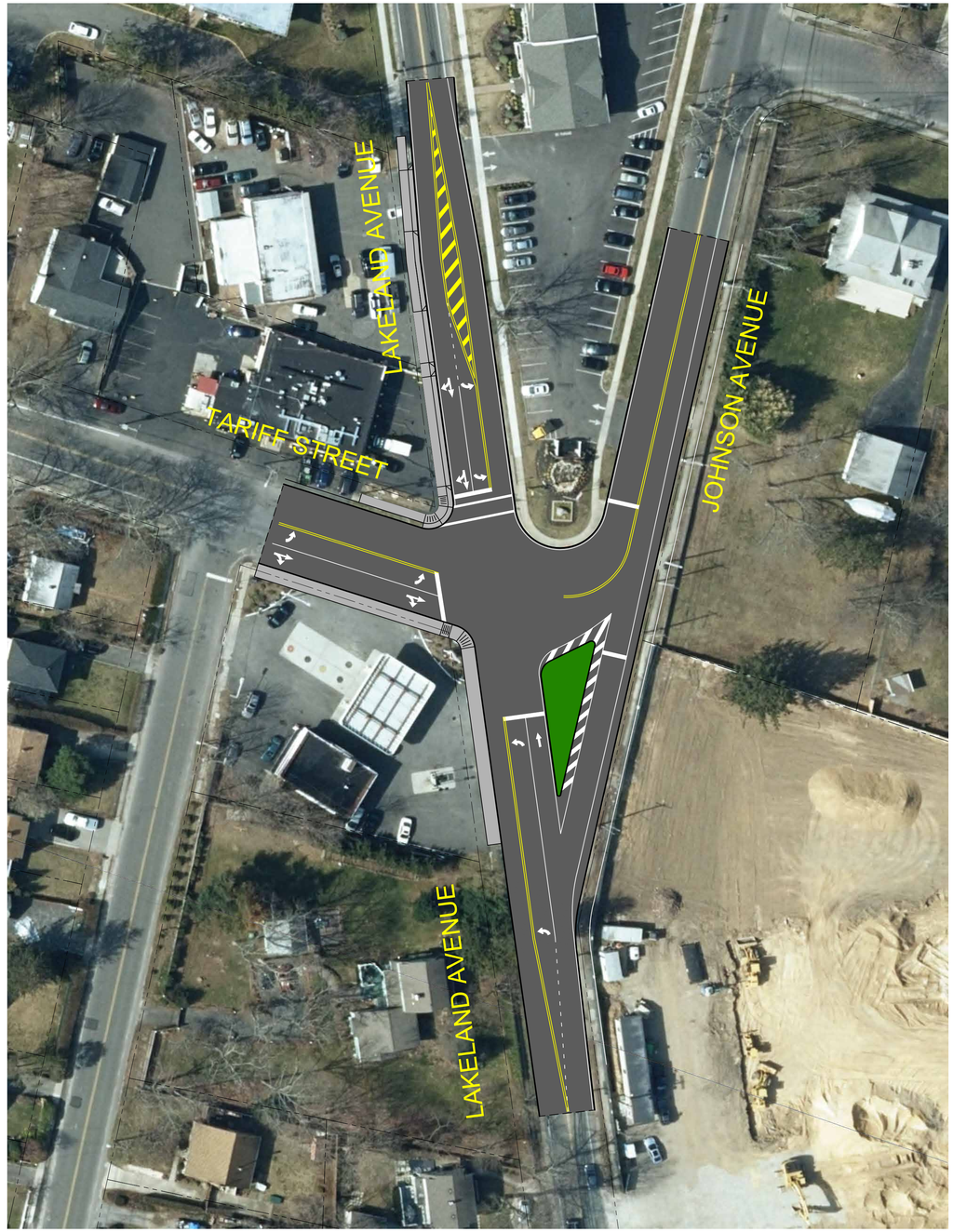
improvements beyond the minor signal adjustments and the physical improvements proposed at the intersection of Lakeland Avenue at NYS Route 27 North Service Road under Phase 4. Mitigation measures have been provided for the intersection of Lakeland Avenue at Tariff Street/Johnson Avenue. The following is a summary of the capacity analyses for the signalized intersection that required mitigation, under Phase 5 of the proposed project.

Lakeland Avenue at Tariff Street/Johnson Avenue

During the No Build school peak and summer conditions, the signalized intersection of Lakeland Avenue at Tariff Street/Johnson Avenue operates at overall LOS D or better during the AM, PM, Friday PM and Saturday midday peak hours. Individual movements experience LOS ranging from A to F. During the Build school peak and summer conditions, the intersection will continue to operate at No Build LOS during the AM, Friday PM and Saturday midday peak periods except for the weekday PM during the school peak season that experiences a significant change in LOS. During the PM school peak, the intersection continued to operate at an overall LOS D but experiences an increase in delay of 5.7 seconds and the westbound approach also continued to operate at LOS F with an increase in delay of 12.2 seconds, which is considered a significant impact.

In order to mitigate these impacts, the northbound approach will be widened to provide an exclusive left turn lane enabling the redistribution of green time to improve the failing westbound approach. Figure 29 is a conceptual plan of the intersection of Lakeland Avenue at Tariff Street/Johnson Avenue with and without the improvement.

With this mitigation, the Town's Subdivision and Land Development Regulations' criteria for no significant impacts will be met during all the studied peak periods with and without other planned developments.



GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 INCH = 20 FEET

NORTH

EXISTING CONDITIONS

No.	DATE	REVISION	BY:
-	-	-	-/-

CONSULTANT:
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RECHLER EQUITY PARTNERS
PLAINVIEW, NEW YORK

DWN. BY:	EL
CHK'D BY:	RS
DATE:	11/6/18
JOB No.:	16130
CADD:	CONCEPT PLAN
SCALE:	AS SHOWN

DRAWING TITLE:
FIGURE 29
LAKELAND AVENUE AT TARIFF STREET / JOHNSON AVENUE
GREY BARN
AT ISLAND HILLS

DRAWING NUMBER:
FIG - 29

SHEET: 1 OF 1

Unsignalized Intersections

A summary of capacity analyses result at the unsignalized intersections during the analyzed peak periods for both the school peak and summer seasons is discussed below. Detailed LOS tables and Synchro results are contained in **Appendix I**.

The results of the unsignalized intersections capacity analyses with and without other planned developments for Phase 5 are similar to those for Phase 4 with minor increases in delay that are not significantly higher than those identified in Phase 4.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay during all analyzed peak hours for both the school peak and summer seasons do not result in a significant impact. Therefore, no mitigation measures are required at the unsignalized intersections under Phase 5 of the project.

Arterial Analyses and Measures of Effectiveness Results for Phase 5

Arterial analyses were conducted for the most critical corridor of the study area (Lakeland Avenue and Railroad Avenue) during the weekday AM and PM school peak to determine the operation of the entire corridor before and after the construction of Phase 5 of the project. In addition to the arterial analyses operational Measures of Effectiveness (MOEs) that display quantitative information about the performance of the intersections and network were also provided for Phase 5.

The following is a summary of the arterial analyses and MOE's for the Lakeland Avenue/Railroad Avenue corridor for the No Build and Build Phase 5 conditions during the weekday AM and PM School peak hours.

TABLE 37: ARTERIAL LEVEL OF SERVICE ANALYSES PHASE 5 – AM PEAK HOUR

AM Peak Hour		No Build Condition			Build Condition -Phase 5		
Arterial	**Cross Street**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**
Lakeland Avenue/ Railroad Avenue NB	Montauk Highway	30	7.8	F	30	7.8	F
	LIRR Crossing	30	25	B	30	25	B
	Manton Street	30	22.3	C	30	22.3	C
	Johnson Avenue	30	13.8	E	30	13.6	E
	Gibbons Court	30	27.4	B	30	24.1	B
	NYS Route 27 South Service Road	30	12.3	E	30	12.1	E
	NYS Route 27 North Service Road	30	13.6	E	30	12.2	E
	Overall	**30**	**18.8**	**C**	**30**	**17.9**	**D**
Lakeland Avenue/ Railroad Avenue SB	NYS Route 27 North Service Road	30	9	F	30	8.8	F
	NYS Route 27 South Service Road	30	13.8	E	30	13.9	E
	Gibbons Court	30	24.8	B	30	19.8	C
	Tarriff Street	30	25.4	B	30	25.3	B
	Manton Street	30	19.5	C	30	19.2	C
	LIRR Crossing	30	24.3	B	30	24.2	B
	Montauk Highway	30	17.5	D	30	17.3	D
	Overall	**30**	**20.1**	**C**	**30**	**19.5**	**C**

TABLE 38: ARTERIAL LEVEL OF SERVICE ANALYSES PHASE 5 – PM PEAK HOUR

PM Peak Hour		No Build Condition			Build Condition -Phase 5		
Arterial	**Cross Street**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**
Lakeland Avenue/ Railroad Avenue NB	Montauk Highway	30	6.7	F	30	6.7	F
	LIRR Crossing	30	22.6	C	30	22.4	C
	Manton Street	30	22	C	30	21.8	C
	Johnson Avenue	30	12	E	30	9.2	F
	Gibbons Court	30	27.6	B	30	25.6	B
	NYS Route 27 South Service Road	30	12.7	E	30	12.6	E
	NYS Route 27 North Service Road	30	13.4	E	30	13	E
	Overall	**30**	**18**	**D**	**30**	**16.9**	**D**
Lakeland Avenue/ Railroad Avenue SB	NYS Route 27 North Service Road	30	4.9	F	30	3.4	F
	NYS Route 27 South Service Road	30	9.7	F	30	10.1	E
	Gibbons Court	30	23.1	C	30	16	D
	Tarriff Street	30	24.2	B	30	24.1	B
	Manton Street	30	16.7	D	30	16.3	D
	LIRR Crossing	30	19.6	C	30	19.5	C
	Montauk Highway	30	15.6	D	30	15.5	D
	Overall	**30**	**16.2**	**D**	**30**	**14.4**	**D**

TABLE 39: MEASURES OF EFFECTIVENESS PHASE 5

Measure	No Build Condition		Build Condition -Phase 5		Build Condition with Mitigation -Phase 5	
	AM Peak Hour	**PM Peak Hour**	**AM Peak Hour**	**PM Peak Hour**	**AM Peak Hour**	**PM Peak Hour**
Control Delay/Veh (s/v)	11	17	13	22	13	15
Queue Delay/Veh (s/v)	0	1	0	1	0	1
Total Delay/Veh (s/v)	12	18	14	23	13	16
Average Speed (mph)	19	15	18	13	18	16
Performance Index	48.8	107	61.7	141.8	59.4	106.6

From the review of the arterial analyses results, during the No Build school peak condition, the northbound and southbound Lakeland Avenue/Railroad Avenue corridors operates at overall LOS C during the AM peak hour and at LOS D during the PM peak hour. Individual roadway segments within the corridor experience LOS ranging from B to F. The arterial will continue to operate at No Build LOS after the construction of Phase 5 of the project except for the AM peak hour that changes from LOS C to LOS D with a minor reduction in arterial speed of 0.9 mph. The No Build measures of effectiveness will change. With the proposed mitigations for Phase 5 of the project, the performance indices will improve significantly.

Summary of Analyses Results for Phase 5

The analyses indicated that two signalized intersections will require physical improvements and the rest of the signalized intersections will continue to operate at No Build LOS with minor signal timing adjustments were necessary.

The proposed mitigations will improve both the operation of the arterial and the measures of effectiveness after the construction of Phase 5 of the project.

It is therefore our professional opinion that the construction of Phase 5 with the implementation of the physical improvements at the intersections of Lakeland Avenue and NYS Route 27 North Service and Lakeland Avenue and Tariff Street/Johnson Avenue will not significantly impact the operation of the intersections within and around the Study Area.

Phase 6 – Traffic Analyses

Signalized Intersections (with and without other planned developments)

The analyses for Phase 6 was conducted for No Build and Build conditions with and without other planned developments for all analysis periods. The capacity analysis results at the signalized intersections for the No Build and Build conditions with and without other planned developments during the analyzed peak periods for both the school peak and summer seasons are discussed below:

The results of the capacity analyses with and without other planned developments for Phase 6 for the signalized intersections are similar to those for Phase 5 of the project with minor increases in delay that do not require improvements beyond the minor signal adjustments and the physical improvements proposed at the intersections of Lakeland Avenue at NYS Route 27 North Service Road and Lakeland Avenue at Tariff Street/Johnson Avenue under Phase 5 of the project.

In order to respond to the Town's comment on the current operation of the Lakeland Avenue corridor in the vicinity of the proposed project site and potential impact of the proposed project on this corridor a further review of traffic analyses results was conducted. As stated above, the mitigation measures recommended for Phase 5 of the project are adequate to mitigate the impacts associated with Phase 6 of the project. However, the following additional mitigation measure has been proposed to further improve the operation of the Lakeland Avenue corridor after the construction of Phase 6 of the project.

- Widen Lakeland Avenue between Chester Road and 11th Street to provide an additional northbound through lane. The widening will begin around Eastover Road and extends to meet the existing 2 lane section of Lakeland Avenue just north of 11th Street.

- The segment of Lakeland Avenue between Eastover Road and Chester Road will be striped to provide one shared northbound left turn/through lane into Chester Street and one through lane.

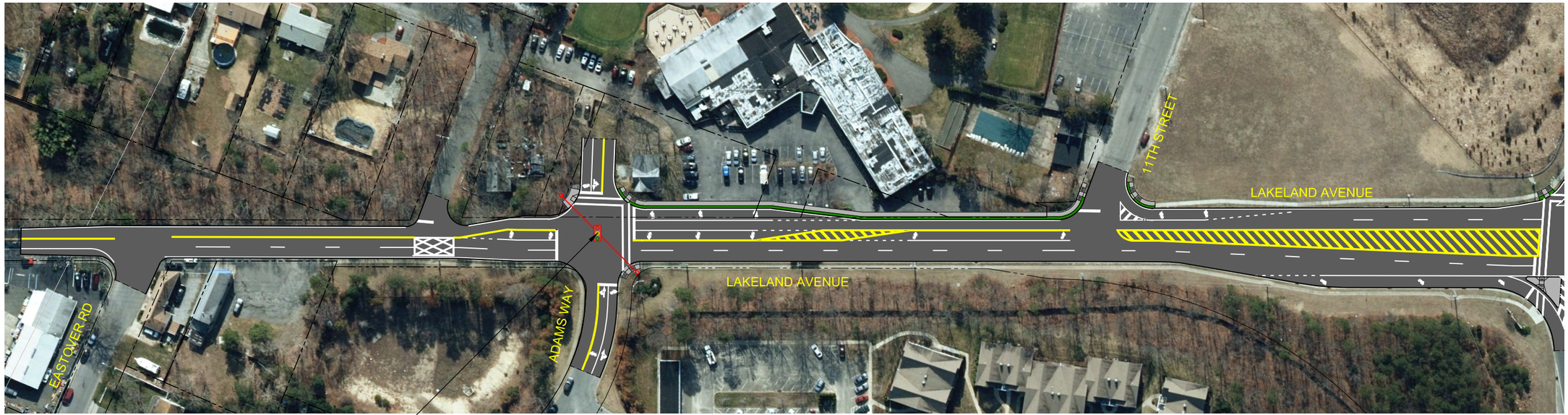
With these improvements the traffic flow along the Lakeland Avenue corridor will improve significantly. Figure 30 is a conceptual plan of Lakeland Avenue between Eastover Road and 11th Street with and without the improvement.

60 0 30 60 120

GRAPHIC SCALE
(IN FEET)
1 INCH = 60 FEET

NORTH

EXISTING CONDITIONS



MODIFY EXISTING TRAFFIC SIGNAL

No.	DATE	REVISION	BY:
-	-	-	-/-

CONSULTANT:
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CLIENT:
RECHLER EQUITY PARTNERS
PLAINVIEW, NEW YORK

DWN. BY:	EL
CHK'D BY:	RS
DATE:	9/10/19
JOB No.:	16130
CADD:	CONCEPT PLAN
SCALE:	AS SHOWN

DRAWING TITLE:
FIGURE 30
LAKELAND AVENUE BETWEEN EASTOVER ROAD AND 11TH STREET
GREY BARN
AT ISLAND HILLS

DRAWING NUMBER:
FIG - 30

SHEET: 1 OF 1

Unsignalized Intersections

A summary of capacity analyses result at the unsignalized intersections during the analyzed peak periods for both the school peak and summer seasons is discussed below. Detailed LOS tables and synchro results are contained in **Appendix I.**

The results of the unsignalized intersections capacity analyses with and without other planned developments for Phase 6 are similar to those for Phase 5 with minor increases in delays that are not significantly higher than those identified in Phase 5.

Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay during all analyzed peak hours for both the school peak and summer seasons do not result in a significant impact. However, the proposed widening on Lakeland Avenue between Eastover Road and 11th Street will significantly improve the operations of the intersections of Lakeland Avenue at Chester Road and Lakeland Avenue at 11th Street.

Arterial Analyses and Measures of Effectiveness Results for Phase 6

Arterial analyses were conducted for the most critical corridor of the study area (Lakeland Avenue and Railroad Avenue) during the weekday AM and PM school peak to determine the operation of the entire corridor before and after the construction of Phase 6 of the project. In addition to the arterial analyses operational Measures of Effectiveness (MOEs) that display quantitative information about the performance of the intersections and network were also provided for Phase 6.

The following is a summary of the arterial analyses and MOE's for the Lakeland Avenue/Railroad Avenue corridor for the No Build and Build Phase 6 conditions during the weekday AM and PM School peak hours.

TABLE 40: ARTERIAL LEVEL OF SERVICE ANALYSES PHASE 6 – AM PEAK HOUR

AM Peak Hour		No Build Condition			Build Condition -Phase 6			Build Condition with Mitigation -Phase 6		
Arterial	**Cross Street**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**
Lakeland Avenue/ Railroad Avenue NB	Montauk Highway	30	7.8	F	30	7.8	F	30	7.8	F
	LIRR Crossing	30	25	B	30	25	B	30	25	B
	Manton Street	30	22.2	C	30	22.1	C	30	22.1	C
	Johnson Avenue	30	13.7	E	30	13.4	E	30	14.2	D
	Gibbons Court	30	27.3	B	30	23.8	C	30	27	B
	NYS Route 27 South Service Road	30	12.3	E	30	12	E	30	12.1	E
	NYS Route 27 North Service Road	30	13.5	E	30	12.1	E	30	11.8	E
	Overall	**30**	**18.8**	**C**	**30**	**17.7**	**D**	**30**	**18.5**	**C**
Lakeland Avenue/ Railroad Avenue SB	NYS Route 27 North Service Road	30	9	F	30	8.8	F	30	10	F
	NYS Route 27 South Service Road	30	13.9	E	30	13.9	E	30	13.6	E
	Gibbons Court	30	24.8	B	30	19.6	C	30	18.4	C
	Tarriff Street	30	25.3	B	30	25.2	B	30	25.2	B
	Manton Street	30	19.4	C	30	19	C	30	19	C
	LIRR Crossing	30	24.3	B	30	24.2	B	30	24.2	B
	Montauk Highway	30	17.4	D	30	17.3	D	30	17.3	D
	Overall	**30**	**20**	**C**	**30**	**19.5**	**C**	**30**	**19.6**	**C**

TABLE 41: ARTERIAL LEVEL OF SERVICE ANALYSES PHASE 6 – PM PEAK HOUR

PM Peak Hour		No Build Condition			Build Condition -Phase 6			Build Condition with Mitigation -Phase 6		
Arterial	**Cross Street**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**	**Flow Speed**	**Arterial Speed**	**Arterial LOS**
Lakeland Avenue/ Railroad Avenue NB	Montauk Highway	30	6.7	F	30	6.7	F	30	6.7	F
	LIRR Crossing	30	22.6	C	30	22.4	C	30	22.4	C
	Manton Street	30	21.9	C	30	21.6	C	30	21.6	C
	Johnson Avenue	30	11.6	E	30	6.5	F	30	13.7	E
	Gibbons Court	30	27.6	B	30	25.5	B	30	27.8	B
	NYS Route 27 South Service Road	30	12.6	E	30	12.4	E	30	12.4	E
	NYS Route 27 North Service Road	30	13.3	E	30	12.8	E	30	11.5	E
	Overall	**30**	**17.9**	**D**	**30**	**15.8**	**D**	**30**	**17.9**	**D**
Lakeland Avenue/ Railroad Avenue SB	NYS Route 27 North Service Road	30	4.4	F	30	3	F	30	6	F
	NYS Route 27 South Service Road	30	9.8	F	30	10.1	E	30	10.2	E
	Gibbons Court	30	23	C	30	15.6	D	30	16.5	D
	Tarriff Street	30	24.1	B	30	24	C	30	23.7	C
	Manton Street	30	16.2	D	30	15.8	D	30	15.8	D
	LIRR Crossing	30	19.5	C	30	19.4	C	30	19.4	C
	Montauk Highway	30	15.2	D	30	15	D	30	15	D
	Overall	**30**	**15.8**	**D**	**30**	**13.8**	**E**	**30**	**16.2**	**D**

TABLE 42: MEASURES OF EFFECTIVENESS PHASE 6

Measure	No Build Condition		Build Condition -Phase 6		Build Condition with Mitigation -Phase 6	
	AM Peak Hour	**PM Peak Hour**	**AM Peak Hour**	**PM Peak Hour**	**AM Peak Hour**	**PM Peak Hour**
Control Delay/Veh (s/v)	11	18	14	25	14	17
Queue Delay/Veh (s/v)	0	1	0	1	0	1
Total Delay/Veh (s/v)	12	19	14	25	14	18
Average Speed (mph)	19	15	17	13	18	16
Performance Index	50.4	114.9	64.2	159.6	60.6	114.1

From the review of the arterial analyses results, during the No Build school peak condition, the northbound and southbound Lakeland Avenue/Railroad Avenue corridors operates at overall LOS C during the AM peak hour and at LOS D during the PM peak hour. Individual roadway segments within the corridor experience LOS ranging from B to F. The arterial will continue to operate at No Build LOS after the construction of Phase 6 of the project except for the AM peak hour that changes from LOS C to LOS D with minor reduction in arterial speed of 1.1 mph. and for the PM peak hour that changes from LOS D to E with a reduction in arterial speed of 2.0 mph. The No Build measures of effectiveness will change. With the proposed mitigations for Phase 6 of the project including the widening of Lakeland Avenue between Eastover Road and 11th Street and the elimination of the intersection of Lakeland Avenue at Chester Road the operation of the Lakeland Avenue corridor and the performance indices will operate at No Build levels or better. The proposed improvements will significantly improve the operations of the Lakeland Avenue corridor.

Additionally, these improvements will reduce the northbound queues along Lakeland Avenue at the intersection of Lakeland Avenue at Gibbons Court and e eliminate the traffic congestion and safety issues at the intersection of Lakeland Avenue and Chester Road. The following tables summarizes the 95th percentile queue lengths on intersection movements along the Lakeland Avenue corridor in the vicinity of the site that will see increase in traffic volumes due to the proposed project. These tables present a comparison of the No Build, Build and Build with mitigations conditions during the weekday AM and PM school peak periods. It can be seen from the tables below that the northbound queue lengths reduced significantly with the proposed widening of Lakeland Avenue and the elimination of the intersection of Lakeland Avenue and Chester Road

TABLE 43: 95TH PERCENTILE QUEUE LENGTHS – AM PEAK HOUR

Intersections			No Build Phase 6	Build Phase 6	Build Phase 6 with Mitigation*
Intersection	**Approach/ Movement.**	**Storage Length (FT)**	**95th % Queue Length (FT)**	**95th % Queue Length (FT)**	**95th % Queue Length (FT)**
Lakeland Avenue & NYS Route 27 South Service Road	EBR	150	54	65	43
	NBT		180	242	246
	NBR	270	122	137	139
	SBT		112	132	132
Lakeland Avenue & Gibbons Court	EBLT			152	172
	EBR			0	0
	WBLT		22	22	25
	WBR		28	22	24
	NBL	100		7	10
	NBTR		399	616	184
	SBR	125		11	22
Lakeland Avenue & Tariff Street/Johnson Avenue	EBL	155	161	162	162
	EBTR		124	140	140
	WBLTR		231	230	230
	NBL	125			40
	NBT		270	286	239
	NBR	125	37	39	37
	SBLTR		215	233	233

***- Phase 6 mitigations include:**

a. Redesign the intersection of NY 27 North Service Road at Lakeland Avenue to provide two exclusives through lanes and two exclusive right turn lanes. Minor signal timing adjustments will also be conducted for the northbound left turn phase – Mitigation for Phase 4

b. Widen the northbound approach at the intersection of Lakeland Avenue and Tariff Street/Johnson Avenue to provide an exclusive left turn lane enabling the redistribution of green time to improve the failing westbound approach – Mitigation for Phase 5

c. Widen Lakeland Avenue between Chester Road and 11th Street to provide an additional northbound through lane. The widening will begin around Eastover Road and extends to meet the existing 2 lane section of Lakeland Avenue just north of 11th Street.

TABLE 44: 95TH PERCENTILE QUEUE LENGTHS – PM PEAK HOUR

Intersections			No Build Phase 6	Build Phase 6	Build Phase 6 with Mitigation*
Intersection	**Approach/ Movement**	**Storage Length (FT)**	**Queue Length (FT)**	**Queue Length (FT)**	**Queue Length (FT)**
Lakeland Avenue & NYS Route 27 South Service Road	EBR	150	96	196	196
	NBT		174	213	217
	NBR	270	172	180	183
	SBT		117	176	210
Lakeland Avenue & Gibbons Court	EBLT			104	115
	EBR			0	0
	WBLT		29	30	33
	WBR		21	2	1
	NBL	100		11	20
	NBTR		309	480	137
	SBR	125		49	27
Lakeland Avenue & Tariff Street/Johnson Avenue	EBL	155	161	165	165
	EBTR		150	162	162
	WBLTR		492	496	496
	NBL	125			75
	NBT		346	563	290
	NBR	125	50	59	54
	SBLTR		506	531	531

***- Phase 6 mitigations include:**

a. Redesign the intersection of NY 27 North Service Road at Lakeland Avenue to provide two exclusives through lanes and two exclusive right turn lanes. Minor signal timing adjustments will also be conducted for the northbound left turn phase – Mitigation for Phase 4

b. Widen the northbound approach at the intersection of Lakeland Avenue and Tariff Street/Johnson Avenue to provide an exclusive left turn lane enabling the redistribution of green time to improve the failing westbound approach – Mitigation for Phase 5

c. Widen Lakeland Avenue between Chester Road and 11th Street to provide an additional northbound through lane. The widening will begin around Eastover Road and extends to meet the existing 2 lane section of Lakeland Avenue just north of 11th Street.

Summary of Analyses Results for Phase 6

The analyses indicated that two signalized intersections will require physical improvements and the rest of the signalized intersections will continue to operate at No Build LOS with minor signal timing adjustments where necessary. The widening of Lakeland Avenue between Eastover Road and 11th Street to provide an additional northbound lane and the elimination of the intersection of Lakeland Avenue and Chester Road will further improve the operation of the Lakeland Avenue corridor and the intersections within that segment of Lakeland Avenue.

The proposed mitigations will improve both the operation of the arterial and the measures of effectiveness after the construction of Phase 6 of the project.

It is therefore our professional opinion that the construction of Phase 6 with the implementation of the physical improvements at the intersections of Lakeland Avenue and NYS Route 27 North Service and Lakeland Avenue and Tariff Street/Johnson Avenue, the widening of Lakeland Avenue and the elimination of the intersection of Lakeland Avenue and Chester Road will not significantly impact the operation of the intersections within and around the study area.

Additional Mitigation Measure for Phase 6
(elimination of the Chester Road at Lakeland Avenue intersection)

In the February 2020 memo from the Town commenting on the project Traffic Impact study, the town recommended the review of an alternative mitigation measure to eliminate the intersection of Lakeland Avenue and Chester Road. The east-west portion of Chester Road to be eliminated and access to Chester Road provided via a new intersection of Chester Road and the signalized Site Access. The intent of the mitigation measure is to eliminate the need for the unconventional signal operation and provide a more efficient operations for the vehicles at Chester Road. Figure 31 is a conceptual plan showing this optional improvement.

As stated previously, the mitigation measures proposed by the applicant for Phase 6 of the project are adequate to mitigate the impacts associated with Phase 6 of the project. However, the optional additional mitigation measure recommended by the Town to further improve the operation of the Lakeland Avenue corridor after the construction of Phase 6 of the project have been analyzed. The following tables summarizes the 95th percentile queue lengths on intersection movements along the Lakeland Avenue corridor in the vicinity of the site that will see increase in traffic volumes due to the proposed project. These tables present a comparison of the No Build, Build and Build with mitigations conditions during the weekday AM and PM school peak periods. It can be seen from the tables below that the reduction in the northbound queue lengths is not significantly different from the reduced queue lengths achieved by the mitigation proposed by the applicant under phase 6. Hence the additional migration recommended by the Town by itself will not further improve queues. However, this mitigation will eliminate the delays associated with the eastbound Chester Road traffic at Lakeland Avenue.

TABLE 45: 95TH PERCENTILE QUEUE LENGTHS – AM PEAK HOUR

Intersections			No Build Phase 6	Build Phase 6	Build Phase 6 with Mitigation (eliminate Chester Road) *
Intersection	**Approach/ Movement.**	**Storage Length (FT)**	**95th % Queue Length (FT)**	**95th % Queue Length (FT)**	**95th % Queue Length (FT)**
Lakeland Avenue & NYS Route 27 South Service Road	EBR	150	54	65	43
	NBT		180	242	249
	NBR	270	122	137	139
	SBT		112	132	132
Lakeland Avenue & Gibbons Court	EBLT			152	178
	EBR			0	0
	WBLT		22	22	25
	WBR		28	22	18
	NBL	100		7	11
	NBTR		399	616	171
	SBR	125		11	22
Lakeland Avenue & Tariff Street/Johnson Avenue	EBL	155	161	162	162
	EBTR		124	140	140
	WBLTR		231	230	230
	NBL	125			40
	NBT		270	286	245
	NBR	125	37	39	37
	SBLTR		215	233	233

***- Phase 6 mitigations include:**

a. Redesign the intersection of NY 27 North Service Road at Lakeland Avenue to provide two exclusives through lanes and two exclusive right turn lanes. Minor signal timing adjustments will also be conducted for the northbound left turn phase – Mitigation for Phase 4

b. Widen the northbound approach at the intersection of Lakeland Avenue and Tariff Street/Johnson Avenue to provide an exclusive left turn lane enabling the redistribution of green time to improve the failing westbound approach – Mitigation for Phase 5

c. Widen Lakeland Avenue between Chester Road and 11th Street to provide an additional northbound through lane. The widening will begin around Eastover Road and extends to meet the existing 2 lane section of Lakeland Avenue just north of 11th Street.

d. Eliminate the intersection of Lakeland Avenue and Chester Road. The east-west portion of Chester Road will be eliminated and access to Chester Road will be provided via a new intersection of Chester Road and Signalized Access.

TABLE 46: 95TH PERCENTILE QUEUE LENGTHS – PM PEAK HOUR

Intersections			No Build Phase 6	Build Phase 6	Build Phase 6 with Mitigation (eliminate Chester Road) *
Intersection	**Approach/ Movement**	**Storage Length (FT)**	**Queue Length (FT)**	**Queue Length (FT)**	**Queue Length (FT)**
Lakeland Avenue & NYS Route 27 South Service Road	EBR	150	96	196	192
	NBT		174	213	225
	NBR	270	172	180	187
	SBT		117	176	205
Lakeland Avenue & Gibbons Court	EBLT			104	157
	EBR			0	0
	WBLT		29	30	32
	WBR		21	2	1
	NBL	100		11	12
	NBTR		309	480	137
	SBR	125		49	56
Lakeland Avenue & Tariff Street/Johnson Avenue	EBL	155	161	165	163
	EBTR		150	162	161
	WBLTR		492	496	517
	NBL	125			65
	NBT		346	563	290
	NBR	125	50	59	54
	SBLTR		506	531	531

***- Phase 6 mitigations include:**

a. Redesign the intersection of NY 27 North Service Road at Lakeland Avenue to provide two exclusives through lanes and two exclusive right turn lanes. Minor signal timing adjustments will also be conducted for the northbound left turn phase – Mitigation for Phase 4

b. Widen the northbound approach at the intersection of Lakeland Avenue and Tariff Street/Johnson Avenue to provide an exclusive left turn lane enabling the redistribution of green time to improve the failing westbound approach – Mitigation for Phase 5

c. Widen Lakeland Avenue between Chester Road and 11th Street to provide an additional northbound through lane. The widening will begin around Eastover Road and extends to meet the existing 2 lane section of Lakeland Avenue just north of 11th Street.

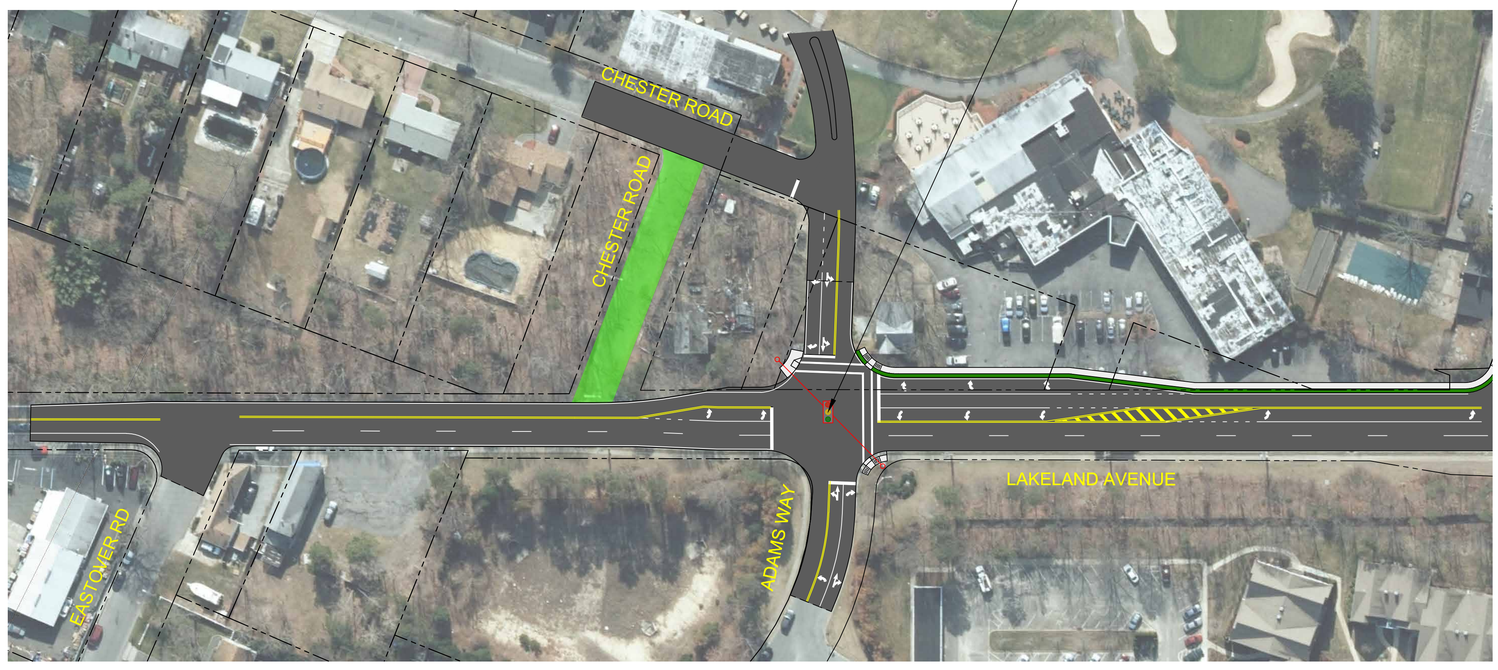
d. Eliminate the intersection of Lakeland Avenue and Chester Road. The east-west portion of Chester Road will be eliminated and access to Chester Road will be provided via a new intersection of Chester Road and Signalized Access.

60 0 30 60 120

GRAPHIC SCALE
(IN FEET)
1 INCH = 60 FEET

NORTH

EXISTING CONDITIONS



No.	DATE	REVISION	BY:
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PLAINVIEW, NEW YORK

DWN. BY:	EL
CHK'D BY:	RS
DATE:	2020-03-26
JOB No.:	16130
CADD:	CONCEPT PLAN
SCALE:	AS SHOWN

DRAWING TITLE:
FIGURE 31
CLOSURE OF CHESTER RD AT LAKELAND AVENUE
GREY BARN
AT ISLAND HILLS

DRAWING NUMBER:
FIG - 31

SHEET: 1 OF 1

Train Crossing Operational Analyses

Video recordings were conducted at the Railroad Avenue train crossing to document its' operation and effects on the traffic along Railroad Avenue. The railroad gate was monitored during the weekday AM and PM and Saturday school season peak periods. Whenever the railroad gates go down, the time of occurrence, duration of the closure, the direction of the train, and the vehicular queue was recorded was documented.

TABLE 47: RAILROAD GATE DATA – RAILROAD AVENUE

Time	Direction	Gate Duration (sec)	Queue (vehicles)		Did Queues clear?
			Northbound	Southbound	
6:05 (AM)	Eastbound	60	1	0	Yes
6:07	Westbound	60	0	5	Yes
6:56	Westbound	150	17	5	Yes
7:08	Westbound	60	1	11	Yes
7:27	Westbound	150	14	16	Yes
7:46	Westbound	50	2	1	Yes
8:07	Westbound	50	6	4	Yes
8:20	Eastbound	130	10	11	Yes
3:37 (PM)	Westbound	130	22	25	Yes
3:50	Westbound	45	7	9	Yes
4:04	Eastbound	150	24	26	Yes
4:29	Westbound	45	9	7	Yes
4:49	Westbound	70	14	20	Yes
4:56	Eastbound	130	20	24	Yes
5:33	Eastbound/Westbound	195	30	19	Yes
5:48	Eastbound	135	25	27	Yes
6:08	Eastbound	135	25	17	Yes
6:36	Westbound	60	21	14	Yes
6:41	Eastbound	150	21	11	Yes
7:09	Eastbound	140	17	19	Yes
7:21	Eastbound	125	17	9	Yes
7:45	Westbound	60	14	6	Yes
7:54	Eastbound	175	18	17	Yes

Upon review of the videos, the duration during which the gates were down ranged from 45 seconds to 3 minutes 15 seconds. As can be seen in Table 47 above, the longest queues along northbound and southbound Railroad Avenue as a result of the railroad gate closure occur during the PM peak hour. The longest observed queues during the AM and PM peak hours are 16 and 30 vehicles respectively. These queues were sometimes observed to block side streets. However, the queues always cleared upon the opening of the railroad gate. Traffic on Railroad Avenue was observed to flow smoothly with some delays when the railroad gate is open. Under Phase 6 of the proposed project (Full Build-Out Scenario), a total of 14 northbound and 35 southbound vehicles will be added to the railroad crossing during the AM peak hour and a total of 35 northbound and 22 southbound vehicles will be added to the railroad crossing during the PM peak hour. The additional traffic will result in an increase of about 1 vehicle every 2

minutes on both the northbound and southbound Railroad Avenue at the crossing. With a maximum observed railroad gate closure of 3 minutes 15 seconds, the proposed project could add two vehicles to the current northbound and southbound queues during the worst-case scenario. These additional queues will not significantly impact the current traffic flow.

In order to model the at grade crossing on Railroad Avenue, the intersection of the railroad crossing and Railroad Avenue was analyzed as a two-phase pre-timed traffic signal with a cycle length equivalent to average time between trains during the peak hours. The train phase is the eastbound/westbound phase with a cycle length equal the average time the gates are in a down position during the peak hours. The northbound/southbound phase has a green phase equal to the average time the gates were in an upward position during the peak hours. The northbound/southbound traffic volumes equal the Railroad Avenue traffic going through the tracks during the peak hours. The eastbound/westbound railroad traffic equal the number of eastbound and westbound trains during the peak hours. The simtraffic simulation included the railroad crossing. The videos are available for viewing by the town if required.

The Sim Traffic analyses of the railroad crossing simulation was compared with the observed queues at the railroad crossing during the weekday AM and PM peak hours. Table 48 summarizes the maximum northbound and southbound queues at the railroad crossing obtained from the Sim Traffic simulation.

TABLE 48: SIM TRAFFIC SIMULATION RAILROAD GATE DATA RAILROAD AVENUE

Peak Period	Maximum Queue (feet)		Maximum Queue (vehicles)	
	Northbound	Southbound	Northbound	Southbound
AM	256	409	14	23
PM	250	669	14	37

Note – assumed 1 vehicle length is approximately 18 feet

As can be seen from the review of tables 47 and 48, the queues observed on Railroad Avenue in the vicinity of the railroad crossing during AM and PM peak hours are similar to those in the Sim Traffic Simulation, hence the modelling results reasonably reflect prevailing conditions. Considering the current traffic flow conditions on Railroad Avenue in the vicinity of the railroad track, the additional traffic from the proposed residential development will not exacerbate the current traffic flow conditions.

Oakdale Merge

The project scope states that "NYS Route 27, Sunrise Highway, currently experience significant recurring congestion during weekday AM and PM peak hours, largely due to the presence of the interchange with the Southern State Parkway and the Heckscher Spur of the Southern State Parkway, and discontinuous service roads in the area known as the Oakdale Merge. The TIS should include an analysis of conditions on NY27 Sunrise Highway, including the project's potential impact on future operating conditions on the highway, potential mitigation measures and the project applicant's role in implementation of mitigation." The Oakdale Merge is located approximately 2 miles west of the project site on Sunrise Highway, as the highway traverses a section of the Connetquot River State Park Preserve. The environmentally sensitive nature of the adjacent wetlands imposes width constraints currently resulting in the 2-lane east and westbound service roads merging with the 3 express lanes of the highway. Delays are common on this section of Sunrise Highway during weekday AM and PM commuter peak periods. The Oakdale merge

begins around Exit 46 in the eastbound direction and around Exit 47A in the westbound direction. The AADT volumes for this section of roadway were 120,274 vpd (2003 count data: NYSDOT) and forecast to present day with an average of 115,750 vpd.

The proposed project is projected to generate 39 eastbound and 112 westbound trips during the AM peak that will traverse the Oakdale Merge section of Sunrise Highway. During the AM peak hour approximately 4,500 vehicles travel in the eastbound direction and 6,600 vehicles in the westbound direction. Therefore, during this period the proposed project will generate slightly less than 2 additional vehicles per minute to the westbound traffic and less than one vehicle per minute in the eastbound direction. During the PM peak hour, the proposed project is expected to generate 113 eastbound and 73 westbound trips that will traverse the Oakdale Merge. Therefore, during this period the proposed project will generate slightly less than 2 additional vehicles per minute to the eastbound traffic and slightly more than one vehicle per minute in the westbound direction. This additional traffic volume is extremely minimal, especially when considering existing traffic volumes on the roadway and will have an imperceptible effect on existing conditions.

Municipal agencies are aware of the congestion present at the Oakdale Merge and in the past have put forth proposals to improve the roadway section but have failed to garner approval due to the environmental sensitivity of the surrounding parklands. However, recently, the NYSDOT has scheduled a Public Information Meeting in order to discuss a Planning Feasibility Study for the Oakdale Merge section of Sunrise Highway. This study has been initiated to identify "existing deficiencies and determine alternatives for operational, safety and mobility improvements". The DOT is seeking participation, comments, ideas and feedback from local community groups. The anticipated completion of the feasibility study is slated for January 2019.

Currently NYSDOT PIN 0059.27 is under construction on the Oakdale Merge section of Sunrise Highway with a contract completion date of 11/14/2019. This project scope includes the following:

- Milling/pavement restoration.
- Drainage improvements.
- The opening of the median barrier on Sunrise Highway (NY27) between Pond Road and Oakdale-Bohemia Road for emergency vehicle access.
- The closure of the first eastbound South Service Road entrance ramp to mainline Sunrise Highway, just east of the Connetquot Avenue overpass.
- Modification to roadway delineators.
- Upgrades to deficient guide rail sections.

Install ramp metering at several westbound entrance ramps prior to the Oakdale Merge.

PARKING ANALYSES

In order to identify the impact of the proposed residential development on the existing LIRR parking lots and municipal parking areas in the Sayville Downtown area, a parking analyses of the existing parking was conducted. The following steps were followed to identify the parking impacts of the proposed project:

- In addition to the LIRR parking lots, the Town of Islip planning was contacted to identify all Town of Islip Parking lots within Downtown Sayville.
- Parking surveys were conducted on June 6th, 2018 when schools were in session from 7am to 9 pm at the identified parking areas.
- The parking data was summarized to identify existing peak parking demand.
- The potential number of residents in the proposed project that will utilize these facilities was estimated.
- A parking analysis to determine the availability of parking in the downtown parking area and LIRR parking lots to accommodate the new residents was conducted.

Existing Parking Areas

A total of four (4) Municipal and three (3) railroad parking areas were studied. The following table summarizes the existing supply broken down by the studied parking areas. The Municipal and railroad parking lots contain a total of 554 and 603 parking spaces respectively.

TABLE 49: EXISTING PARKING SUPPLY

Type of Parking	Parking Area	Total Number of Spaces
Municipal Lots	Sayville Parking Lot 4 (south of Middle Road between Gillette Avenue and Collins Avenue)	134
	Sayville Parking Lot 5 (south of Main Street between Candee Avenue and Gillette Avenue)	29
	Sayville Parking Lot 6 (south of Main Street between Candee Avenue and Greene Avenue)	187
	Sayville Parking Lot 15 (Center Street)	204
Total		554
Railroad Lots	Sayville Railroad Station North Parking Lot	331
	Sayville Railroad Station Southeast Parking Lot	119
	Sayville Railroad Station South Parking Lot	153
Total		603

Existing Parking Accumulation

A parking accumulation survey was conducted at the parking areas between the hours of 7am - 9 pm on an hourly basis on Wednesday June 6, 2018. The following table shows the existing parking surveys conducted at the parking areas shown in Table 49.

TABLE 50: PARKING OBSERVATIONS

Time	Municipal Lot 4	Municipal Lot 5	Municipal Lot 6	Municipal Lot 15	Total Municipal parking	LIRR North Lot	LIRR Southeast Lot	LIRR South Lot	Total Railroad parking
7am	15	3	4	22	44	227	19	101	347
8am	15	3	6	26	50	302	35	121	458
9am	29	13	40	57	139	306	52	123	481
10am	56	20	66	80	222	316	56	119	491
11am	83	28	72	85	268	312	56	117	485
12pm	73	26	110	107	316	313	56	123	492
1pm	86	26	106	110	328	315	58	121	494
2pm	95	24	103	104	326	316	62	119	497
3pm	100	27	86	104	317	316	53	124	493
4pm	95	29	90	105	319	323	48	112	483
5pm	120	26	84	89	319	281	46	104	431
6pm	103	27	97	107	334	247	40	78	365
7pm	103	22	78	90	293	165	30	70	265
8pm	97	22	74	71	264	124	16	36	176
Capacity	**134**	**29**	**187**	**204**	554	**331**	**119**	**153**	**603**
% Occupied	**90%**	**100%**	**59%**	**54%**	**60%**	**98%**	**52%**	**81%**	**82%**

A review of Table 50 reveals that the peak parking demand times for the individual parking areas vary considerably. Parking Lots 4. 5 and LIRR North parking lot are highly utilized during weekdays with overall peak utilization ranging from 90% to 100%. The Municipal parking areas have an overall peak parking utilization of 334 spaces (60%). This translates to an overall municipal parking availability of 220 parking spaces during the peak weekday parking demand. The Railroad parking areas have an overall peak parking utilization of 497 parking spaces (82%) during the peak weekday parking demand resulting in an availability of 106 parking spaces during the peak weekday parking demand.

Potential Use of Sayville Parking by Island Hills Residents

During the scoping process, the issue of the level of use of the Sayville downtown parking areas including the LIRR parking lots by the potential future residents of the proposed residential development was raised and included in the final scope of the proposed PDD**.** To determine the level of use of these parking areas by potential residents, an estimate of the number of potential users was determined.

The proposed residential development contains a total of 1365 residential units. Based on the fiscal and economic analyses conducted for this project, a total of 2313 adults (non-school age) residents will reside in this residential development.

To determine the number of adult residents of the development who will likely be employed and potentially use public transit, data from the U.S. Census Bureau specifically for Sayville was utilized.

Based on the US Census Data for Sayville, 60% of Adult residents will likely be employed. Applying these number to the potential number of Island Hills residents, a total of 1,388 Island Hills residents will likely be employed. A percentage of these working residents will likely use the LIRR to commute to their place work. The same census data indicated that approximately 8% of workers uses the railroad. Given that Sayville residents have the option to use either the Sayville Station or the Ronkonkoma Station, we assume that 4% of commuters will use the Sayville Station and the other 4% of commuters will use the Ronkonkoma Station. Applying these percentages, the potential number of employed residents in the proposed development will result in an estimate of 56 potential LIRR users from the Island Hills development for both the Sayville and Ronkonkoma Stations.

Based on the current availability of parking within the Sayville Downtown Area and the LIRR parking lots, there will be an adequate number of parking spaces to support the additional demand from the potential residents of the Island Hills development. To further reduce or eliminate the need for parking at the trains station by potential residents, the applicants is proposing to provide private shuttle services (private transit) to transport residents to and from the train station during the AM and PM commuter peak hours. The applicant will be working on the details of this service as the project progresses.

Parking observations were also made at the Ronkonkoma Station during the peak (9am -10am), when all commuters would have parked their vehicles for two typical weekdays. On both days more than 260 parking spaces were available. Therefore, there is adequate parking (paid and unpaid) available at the Ronkonkoma Station to accommodate the estimated 56 residents that could potentially use the Ronkonkoma Station.

The availability of parking in the Sayville downtown area during weekends will be significantly higher than what was observed during weekdays since the LIRR parking lots will be highly under-utilized on weekends. Hence, there will be adequate parking to support any weekend shoppers from the Island Hills development.

Impact of School Related Traffic

In response to comments from the Town on the proposed development's impact on school related traffic field observations were conducted at the following schools on May 30th and June 3rd, 2019 during the AM drop-off periods and the PM pick-up periods.

- Edward J. Bosti Elementary School
- Oakdale-Bohemia Middle School
- Connetquot High School

Edward J. Bosti Elementary School

The Edward J. Bosti Elementary School is located at 50 Bourne Boulevard, less than 0.5 miles from the proposed site. The morning arrival times and afternoon dismissal times at this school are scheduled at

9:05 am and 3:35 pm respectively. Field observations were conducted at this school between 8:30 am and 9:30 am and from 3pm to 4pm to observe firsthand, the pickup and drop off at the school to get a clear understanding of the existing operation and how the proposed project may or may not affect the existing school arrival and dismissal patterns. From an overall perspective the busy drop-off time period lasted for approximately 20 minutes between 8:50 AM to 9:10 AM and the busy pick up period lasted for approximately 30 minutes between 2:30 PM to 3 PM. During these short time periods minor congestion was observed on Bourne Boulevard and the loop access to the school. No Traffic flow and circulation issues were observed during these time periods. Drop-offs and pick-ups were done in an orderly manner. Outside of these time periods, no traffic congestion issues were observed on the roadways in the vicinity of the school.

Oakdale-Bohemia Middle School

The Oakdale-Bohemia Middle School is located at 60 Oakdale-Bohemia Road, approximately 2.5 miles from the proposed site. The morning arrival times and afternoon dismissal times at this school are scheduled at 7:40 am and 2:44 pm respectively. Field observations were conducted at this school between 7:20 am to 8:00 am and from 2:00 pm to 3pm to observe firsthand, the pickup and drop off at the school to get a clear understanding of the existing operation and how the proposed project may or may not affect the existing school arrival and dismissal patterns. From an overall perspective the busy drop-off time period lasted for approximately 25 minutes between 7:25 AM to 7:50 AM and the busy pick up period lasted for approximately 15 minutes between 2:30 PM to 2:45 PM. During these short time periods significant amount of congestion was observed on northbound Oakdale-Bohemia Road and the access to the school especially during the afternoon pick-up period. Outside of these time periods, no traffic congestion issues were observed on the roadways in the vicinity of the school. The following is a more detailed description of the field observations.

- During drop-off in the morning all buses were observed lined up along the bus drop-off area along the eastside of the school. The students were discharged from the buses at the same time (around 7:45 am). All the students entered the school building in an orderly manner using the two main doors on the eastside of the building. No conflicts between students and vehicles were observed.
- Parents entered the school from the north driveway and dropped-off students on the south side of the school building. After dropping off the students, parents looped around the perimeter of the parking lot and exit via the north access if their destinations were north on Oakdale-Bohemia Road or via the south access if their destination were south on Oakdale-Bohemia Road. Cones were deployed along the parking lot perimeter to prohibit the use of the middle parking lanes.
- Long queues were observed on Oakdale-Bohemia Road during the drop-off periods.
- Security personnel were present to direct traffic and help minimize traffic conflicts.
- All buses left the school after drop-off in an orderly manner.
- The queues on the school drop-off area and on Oakdale-Bohemia Road cleared around 7:50am.
- The morning drop-off observations were similar to the afternoon pick-up observations.
- During the afternoon pick-up period, all the buses lined-up in the bus pick up area around 2:30 pm. Parents were also lined up along the parent drop-off/pick-up area on the south side of the school. Around 2:40 students boarded the buses and all the buses left the school via both the north and south driveways in an orderly manner around 2:45 pm.

- Similar to the drop-off, parent picked-up students and looped around the perimeter of the parking lot to exit the school via the north and south driveways. Vehicles exiting the north driveway experienced longer queues since most of the exiting vehicles were making left turns onto Oakdale Bohemia Road. Left turning vehicles experienced an average of 20 seconds of delay per vehicle.

Overall, Oakdale-Bohemia Road and the school access points and drop-off/pick-up areas experienced delays and traffic congestion during the drop-off and pick-up periods that lasted at most 30 minutes. Outside these time periods no traffic congestion and traffic flow issues were observed. These types of conditions are common at many schools in Long Island.

Connetquot High School

The Connetquot High School is located at 190 7th Street, in Bohemia New York, approximately 3.8 miles from the proposed site. The morning arrival times and afternoon dismissal times at this school are scheduled at 7:00 am and 1:30 pm, 2:11 pm respectively. Field observations were conducted at this school between 6:30 am to 7:30 am and from 1:00 pm to 2:30 pm to observe firsthand, the pickup and drop off at the school to get a clear understanding of the existing operation and how the proposed project may or may not affect the existing school arrival and dismissal patterns. From an overall perspective the busy drop-off time period lasted for approximately 30 minutes between 6:45 AM to 7:15 AM and the busy pick up period lasted for approximately 50 minutes between 1:30 PM to 2:20 PM. During these short time periods congestion was observed on 7th Street and the access to the school. Outside of these time periods, no traffic congestion issues were observed on the roadways in the vicinity of the school. The following is a more detailed description of the field observations.

- At the High School the bus drop-off area is totally separated from the parent drop of area. The bus drop of are is in front of the school building on the east side and the parent drop-off area is in front of the school building on the west side.
- During drop-off in the morning all buses were observed dropping students along the bus drop-off area and left the school via the bus loop area and 7th Street in an orderly manner.
- Parents dropped off the students along the parent drop off area and looped around to exit the school via 7th Street in an orderly manner.
- Long queues were observed on 7th Street during the drop-off periods.
- Security personnel were present at the entrance to direct traffic and pedestrian crossing to help minimize traffic and pedestrian conflicts.
- All buses left the school after drop-off in an orderly manner.
- During the afternoon pick-up period, all the buses lined-up in the bus pick up area Parents were also lined up along the parent drop-off/pick-up area. Around 2:10 students boarded the buses and all the buses left the school via 7th Street in an orderly manner.
- Parents picked up the students along the parent drop off/pick-up area and looped around to exit the school via 7th Street in an orderly manner.

Overall, 7th Street and the school access point and drop-off/pick-up areas experienced delays and traffic congestion during the drop-off and pick-up periods that lasted at most 30 minutes in the morning and 50 minutes in the afternoon. Outside these time periods no traffic congestion and traffic flow issues were observed. These types of conditions are common at many schools in Long Island.

To determine the level of impact the proposed development will have, if any, on school related transportation of these parking areas by potential residents, an estimate of the number of potential number of school children that will reside at the development was determined. The proposed residential development contains a total of 1365 residential units. Based on the fiscal and economic analyses conducted for this project, a total of 210 school aged children will reside in this residential development. The as-of- right development of 98 single family homes will generate a total of 144 school aged children, 66 less than the proposed development. The 210 students will be distributed between the elementary, middle and high school. Based on the number of grades from K through 12, of the 210 school aged children, we estimated 97 elementary school children, 48 middle school children and 65 high school students. Based on this estimate, the elementary school children will generate between 2 and 3 school buses, the middle school children will generate between 1 and 2 buses and the high school students will generate between 1 and 2 buses.

. Based on our field observations as noted above, the addition of few more school buses will not significantly impact traffic flow and congestion on the surrounding roadways and should not require any changes to the current bus routes. Data obtained from the Pre-K Through 12th Grade Nassau/Suffolk County School Enrollment for 2014 through 2019 show that the student enrollment at the Connetquot Central School District consistently declined over the five (5) school year periods. The Connetquot Central School District lost a total of 502 students over the 5-year period. Based on this trend and the current bus utilization, the additional students could be accommodated in the current bus fleet and hence may not require any changes to the current fleet. Additionally, any increases in the number of vehicles dropping off and picking up students, driving to and parking at the school facilities was included in the trip generation and distribution of traffic for the proposed project and hence will be reflected in the capacity analyses results of the study intersections. Any traffic flows and congestion issues at the school facilities are existing and only occur for a short period of time during the morning drop-off periods and the afternoon pick-up periods. The project traffic traveling to and from these school facilities should not significantly impact the current operation of the school facilities.

However, to improve the current traffic condition during the short period of time they occur, the following can be considered:

- Have more than one arrival and departure time per school (stagger the arrival and departure times by 30 minutes). This can be done by grades. For example, have Grade 3 thru 5 students arrive half an hour before Pre-K thru 2. This will help distribute traffic and relieve traffic congestion.
- Install signs along the drop off /pick up areas to encourage parents not to double park during drop off and pickups. This will improve traffic circulation and hence reduce traffic congestion.

ALTERNATIVES

In accordance with the Final Scope, this Traffic Study included the description and evaluation of reasonable alternatives to the proposed project. This section of the report is an evaluation of the following alternatives and their related traffic impacts:

Alternative 1: No Action (Zoning remains the same: the proposed project site remains in its' existing use and condition).
Under this alternative, the intersections and roadways in the Study Area will operate under No Build Conditions.

Alternative 2: This alternative is based on the development of the site per existing zoning for single family dwellings. A yield of a 98 single family lot subdivision was established in accordance with the Town's Subdivision and Land Development Regulations. Trip Generation estimates for Alternative 2 were prepared utilizing data under Land Use Code 210- Single-Family Detached Housing from the ITE publication, *Trip Generation, Tenth Edition.* The following table is comparison of the trips associated with Alternative 2 and a comparable phase of the proposed project.

TABLE 51: TRIP GENERATION COMPARISON FOR ALTERNATIVE 2

Time Period	Alternative 2 98 Single Family Homes	Phase 1 – Proposed Project 138 Multi-Family Units	Phase 2 – Proposed Project 360 Multi-Family Units
AM	18 enter	13 enter	34 enter
	56 exit	37 exit	96 exit
	74 total	**50** total	**130** total
PM	63 enter	37 enter	97 enter
	37 exit	24 exit	62 exit
	100 total	**61** total	**159** total
SATURDAY	54 enter	30 enter	78 enter
	46 exit	31 exit	81 exit
	100 total	**61** total	**159** total

As can be seen from the table above, Alternative 2 generates more trips than Phase 1 of the proposed project but less trips than Phase 2 of the proposed project. Based on the capacity analyses conducted for Phase 1 and Phase 2 of the proposed project discussed in traffic analyses section of the report, it was concluded that the construction of Phase 1 and Phase 2 of the proposed project will not result in significant traffic impacts on the study intersections and surrounding roadways. Based on the trip generation comparison for Alternative 2 and Phases 1 and 2 of the proposed project, the same conclusion can be made for Alternative 2.

Alternative 3: This alternative is based on the development of the site with a multifamily development at a reduced yield, which does not significantly impact roadways in the study area. A yield of 1000 multifamily rental units with 39 single family ownership units surrounding the rental community with

interspersed open space. The structures are 2 ½ stories in height. Trip Generation estimates for Alternative 3 were prepared utilizing data under Land Use Code 210- Single-Family Detached Housing for the ownership units and Land Use Code 220- Multifamily Housing (Low-Rise) for the rental units from the ITE publication, *Trip Generation, Tenth Edition.* The following table is a comparison of the trips associated with Alternative 3 and a comparable phase of the proposed project.

TABLE 52: TRIP GENERATION COMPARISON FOR ALTERNATIVE 3

Time Period	Alternative 3 39 Single Family Homes and 1000 Multi-Family Units	Phase 6 – Proposed Project 1365 Multi-Family Units
AM	114 enter 378 exit **492** total	127 enter 364 exit **491** total
PM	379 enter 222 exit **601** total	366 enter 235 exit **601** total
SATURDAY	319 enter 272 exit **591** total	294 enter 307 exit **601** total

As can be seen from the table above, the trips generated by Alternative 3 are similar to those for Phase 6 of the proposed project. Based on the capacity analyses conducted for Phase 6 of the proposed project, discussed in traffic analyses section of the report, it was concluded that the construction of Phase 6 will require physical improvements at the intersections of Lakeland Avenue and NYS Route 27 North Service and Lakeland Avenue and Tariff Street/Johnson Avenue. With these improvements, Phase 6 of the proposed project will not significantly impact the operation of the intersections within and around the Study Area. Based on the trip generation comparison for Alternative 3 and Phase 6 of the proposed project, the same conclusion can be made for Alternative 3.

Alternative 4: This alternative is based on rezoning the site to a Residence AA District and developed as an attached single-family dwelling clustered subdivision with a private recreation area. A yield of 122 multifamily units with 59 single family units was developed. Trip Generation estimates for Alternative 4 were prepared utilizing data under Land Use Code 210- Single-Family Detached Housing for the single-family units and Land Use Code 220- Multifamily Housing (Low-Rise) for the multifamily units from the ITE publication, *Trip Generation, Tenth Edition.* The private recreation area will not generate external trips. The following table is comparison of the trips associated with Alternative 4 and a comparable phase of the proposed project.

TABLE 53: TRIP GENERATION COMPARISON FOR ALTERNATIVE 4

Time Period	Alternative 4 59 Single Family Homes and 122 Multi-Family Units	Phase 1 – Proposed Project 138 Multi-Family Units	Phase 2 – Proposed Project 360 Multi-Family Units
AM	25 enter 78 exit **103** total	13 enter 37 exit **50** total	34 enter 96 exit **130** total
PM	81 enter 48 exit **129** total	37 enter 24 exit **61** total	97 enter 62 exit **159** total
SATURDAY	72 enter 62 exit **134** total	30 enter 31 exit **61** total	78 enter 81 exit **159** total

As can be seen from the table above, Alternative 4 generates more trips than Phase 1 of the proposed project but less trips than Phase 2 of the proposed project. Based on the capacity analyses conducted for Phase 1 and Phase 2 of the proposed project, discussed in traffic analyses section of the report, it was concluded that the construction of Phase 1 and Phase 2 of the proposed project will not result in significant traffic impacts on the study intersections and surrounding roadways. Based on the trip generation comparison for Alternative 4 and Phases 1 and 2 of the proposed projects, the same conclusion can be made for Alternative 4.

Alternative 5: This alternative is based on the development of the site as a Life Cycle Community consisting of 800 Multifamily units, 59 Senior Housing units, 400 Congregate Care units, 150 Assisted Living units and 120 Bed Nursing Home. Trip generation estimates for Alternative 5 were prepared utilizing data under ITE Land Use Code 220- Multifamily Housing (Low-Rise), ITE Land Use Code 251 -Senior Housing Detached, ITE Land Use Code 253 – Congregate Care Facility from the ITE publication, *Trip Generation, Tenth Edition.* The following table is comparison of the trips associated with Alternative 5 and a comparable phase of the proposed project.

TABLE 54: TRIP GENERATION COMPARISON FOR ALTERNATIVE 5

Time Period	Alternative 5 Life Cycle Community	Phase 6 – Proposed Project 1365 Multi-Family Units
AM	143 enter	127 enter
	329 exit	364 exit
	472 total	**491** total
PM	362 enter	366 enter
	255 exit	235 exit
	617 total	**601** total
SATURDAY	309 enter	294 enter
	267 exit	307 exit
	576 total	**601** total

As can be seen from the table above, the trips generated by Alternative 5 are similar to those for Phase 6 of the proposed project. Based on the capacity analyses conducted for Phase 6 of the proposed project discussed in traffic analyses section of the report, it was concluded that the construction of Phase 6 will require physical improvements at the intersections of Lakeland Avenue and NYS Route 27 North Service and Lakeland Avenue and Tariff Street/Johnson Avenue. With these improvements, Phase 6 of the proposed project will not significantly impact the operation of the intersections within and around the Study Area. Based on the trip generation comparison for Alternative 5 and Phase 6 of the proposed project, the same conclusion can be made for Alternative 5.

Alternative 7: This alternative is based on the development of the site with 1,365 multi-family residential units. The unit count for Alternative 7 is equal to Phase 6 of the proposed project and therefore, the results of the capacity analysis will be the same.

Alternative 8: This alternative is based on the development of the site with an industrial park. A yield of 1,000,000 SF of Industrial Park was used. Trip generation estimates for Alternative 8 were prepared utilizing data under Land Use Code 130- Industrial Park from the ITE publication, *Trip Generation, Tenth Edition.* The following table is a comparison of the trips associated with Alternative 8 and a comparable phase of the proposed project.

TABLE 55: TRIP GENERATION COMPARISON FOR ALTERNATIVE 8

Time Period	Alternative 8 1,000,00 SF Industrial Park	Phase 4 – Proposed Project 967 Multi-Family Units
AM	324 enter 76 exit **400** total	90 enter 258 exit **348** total
PM	84 enter 316 exit **400** total	259 enter 167 exit **426** total
SATURDAY	141 enter 299 exit **440** total	209 enter 217 exit **426** total

As can be seen from the table above, the trips generated by Alternative 8 are similar to those for Phase 4 of the proposed project. Based on the capacity analyses conducted for Phase 4 of the proposed project discussed in traffic analyses section of the report, it was concluded that the construction of Phase 4 will require physical improvements at the intersection of Lakeland Avenue and NYS Route 27 North Service. With these improvements, Phase 4 of the proposed project will not significantly impact the operation of the intersections within and around the Study Area. Based on the trip generation comparison for Alternative 8 and Phase 4 of the proposed project, the same conclusion can be made for Alternative 8.

CONCLUSION

Nelson & Pope conducted a detailed Traffic Impact Study for the proposed Planned Development District to develop a 1,365-unit rental residential community to identify traffic issues within and around the Study Area and evaluated how these traffic issues can be mitigated. This proposed project is located on the site of the former Island Hills Country Club, a 114.33-acre property in the hamlet of Sayville, Town of Islip, Suffolk County, New York. The subject site is located on the west side of Lakeland Avenue and the east sides of Bohemia Parkway and Hauppauge Road, between 11th Street and Sterling Place; the address of the site is 458 Lakeland Avenue.

In order to identify the traffic impacts associated with the proposed project, the analyses were conducted for the following six (6) development phases:

- Phase 1- A total of 138 units will have been constructed by the end of Phase1.
- Phase 2 – A total of 360 units will have been constructed by the end of Phase 2
- Phase 3 – A total of 678 units will have been constructed by the end of Phase 3
- Phase 4 – A total of 967 units will have been constructed by the end of Phase 4
- Phase 5 – A total of 1180 units will have been constructed by the end of Phase 5
- Phase 6 – A total of 1365 units will have been constructed by the end of Phase 6

From the review of the capacity analyses results for each of the phases contained in the analyses section of this report, the analyses indicated that 34 of the 36 study intersections will continue to operate at No Build levels of Service (LOS) after the completion of Phases 1, 2 and 3 of the proposed project. Two intersections did experience changes in LOS from the No Build to Build Conditions. However, with minor signal adjustments that can be accommodated by the current signal controllers, these two intersections will continue to operate at No Build LOS or better after the completion of Phases 1, 2 and 3 of the project. Based on the Town's Subdivision and Land Development Regulations' criteria for determining impacts, the increase in delay, experienced at the study intersections during all analyzed peak hours for both the school peak and summer seasons does not result in a significant impact. Therefore, no mitigation measures are required at these intersections under Phases 1, 2 and 3 of the projects.

It is therefore our professional opinion that the construction of up to Phase 3 (678 units) of the proposed project will not significantly impact the operation of the intersections within and around the Study Area.

The results of the capacity analyses for Phase 4 indicated that the southbound approach at the intersection of Lakeland Avenue at NYS Route 27 North Service Road experiences an increase in delay of more than 29 seconds for both the PM and Friday PM peak periods and the overall intersection delay also increased by more than 9 seconds during the PM and the Friday PM peak periods. These increases, in delay, are considered significant impacts and hence will require mitigation.

In order to mitigate these impacts, the southbound approach of this intersection which currently provides an exclusive through lane, a shared through/right turn lane and an exclusive right turn lane will be redesigned to provide two exclusives through lanes and two exclusive right turn lanes. Minor signal timing adjustments will also be conducted for the northbound left turn phase.

With this mitigation, the Town's Subdivision and Land Development Regulations' criteria for no significant impacts will be met during all the studied peak periods with and without other planned developments.

The results of the capacity analyses for Phases 5 and 6 indicated that, the intersections of Lake Land Avenue and NYS Route 27 North Service Road and Lakeland Avenue at Tariff Street/Johnson Avenue experiences increases in delay that are considered significant impacts and hence will require mitigations.

In addition to the mitigation recommended for Phase 4, with the development of Phases 5 and 6 additional mitigations are recommended. In order to mitigate these impacts at the intersection of Lakeland Avenue and Tariff Street/Johnson Avenue, the northbound approach will be widened to provide an exclusive left turn lane enabling the redistribution of green time to improve the failing westbound approach.

With these mitigations, the Town's Subdivision and Land Development Regulations' criteria for no significant impacts will be met during all the studied peak periods with and without other planned developments.

In order to respond to the Town's comment on the current operation of the Lakeland Avenue corridor in the vicinity of the proposed project site and potential impact of the proposed project on this corridor a further review of traffic analyses results was conducted. As stated above, the mitigation measures recommended for Phase 5 of the project are adequate to mitigate the impacts associated with Phase 6 of the project. However, the following additional mitigation measure has been proposed to further improve the operation of the Lakeland Avenue corridor after the construction of Phase 6 of the project.

- Widen Lakeland Avenue between Chester Road and 11th Street to provide an additional northbound through lane. The widening will begin around Eastover Road and extends to meet the existing 2 lane section of Lakeland Avenue just north of 11th Street.

- The segment of Lakeland Avenue between Eastover Road and Gibbons Court/Site Access will be striped to provide two through lanes and one northbound left turn into the Site Access.

With these improvements the traffic flow along the Lakeland Avenue corridor will improve significantly.

The proposed mitigations will improve both the operation of the Lakeland Avenue corridor and the measures of effectiveness after the construction of the proposed project.

Based on the results of the Traffic Impact Study, as detailed in the body of this report, it is the professional opinion of Nelson & Pope that the construction of the Phases 1, 2 and 3 of the proposed project will not significantly impact the operation of the roadways and intersections adjacent to the site. The impacts created by Phases 4, 5 and 6 can be mitigated by the implementation of the proposed improvements measures. With these improvement measures, the Lakeland Avenue corridor and the intersections in the study area will continue to operate at No Build or better levels of service after the full build out of the project.

Appendix F-2

Response Memo to Town

N&P, LLP

June 18, 2020

Response to Town Comments

Traffic Impact Study
Greybarn-Sayville
Planned Development District

Prepared for: Rechler Equity Partners

Updated September 2019

Updated May 2020

N&P Property No. 16130

Prepared by:

NELSON & POPE
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MEMORANDUM

TO: Jessica M. Joyce
Senior Environmental Analyst
Town of Islip Department of
Planning and Development
655 Main Street
Islip, NY 11751

DATE: May 12, 2020

N&P PROP. NO. 16130

FROM: Osman Barrie, PE, PTOE, PTP
Senior Project Manager

CC: File

SUBJECT: Island Hills Traffic Impact Study Review

Nelson & Pope is in receipt of your memo dated February 14, 2020 containing the results of your transportation review of our Updated Traffic Impact Study/Comment-Response Memorandum for the proposed Island Hills Planned Development District (PDD) in Sayville, NY. Upon review of the memo, we offer the following responses to your comments. The Traffic Impact Study have been revised to incorporate these responses to your comments:

Miscellaneous Comment 1*: In general, the responses offered to our April 17, 2019 memorandum continue to lack a discussion of the comparison of impacts between the proposed development and the as of right development. However, as of right development impacts can generally be assumed to be reflected in the background traffic growth rate. Therefore, for the purpose of the review, the No Build analysis is considered the rough equivalent of the as of right impacts.*

Response – The impact of the as of right developments should be greater than the No Build Condition. Hence, we agree that the as of right development impacts can generally be assumed to be reflected in the background growth rate and hence the No Build analyses can be considered as a rough equivalent of the as of right impacts.

Miscellaneous Comment 2*: As per our prior comments, no specific site plan review is included in this memorandum, insofar as the development scenario is conceptual in nature and is dependent on the rezoning of the site as discussed below. However, where appropriate, we have provided comments on certain aspects of the proposed project that are described in the report.*

Note also that the report, provides no discussion of pedestrian or bicycle activities, or proposed accommodations thereof, either on site or external to the site. The location of the project at the extreme northern end of the Sayville community does not particularly lend itself to pedestrian connectivity to the downtown or waterfront recreational areas, but pedestrian connectivity to the community at large is increasingly important as the limits of motor vehicle capacity are approached. Any proposed site configuration should include full

width sidewalks on all site frontages, preferably five (5) feet wide, and full ADA compliant pedestrian facilities. In addition, depending on right of way availability, bike lanes should be considered, both internal and external to the site. At a minimum, travel lanes within the site should be 14' wide to accommodate bikes, or shared use paths considered with logical connection points to routes to local schools.

Response – Any proposed site configuration will include full width sidewalks throughout the entire site. The conceptual layout plan shows a trail/path throughout the site for pedestrian use. Sidewalks currently exist along the entire westside of the Lakeland Avenue segment between Chester Road and Montauk Highway. For pedestrian connectivity, the applicant will install sidewalks along the site frontage on Lakeland Avenue (between 11th Street and Chester Road) to connect onto the existing sidewalks. With the proposed sidewalks, the entire westside of Lakeland Avenue between the NY 27 Service Roads and Montauk Highway will have continuous sidewalks. Most sections of the eastside Lakeland Avenue segment between NYS 27 Service Roads and Montauk Highway contain sidewalks. Lakeland Avenue between Chester Road and the Railroad tracks has at least 7 feet shoulders. The applicant will provide shoulders on the westside of Lakeland Avenue between the site access and Chester Road to connect to the existing shoulders. These shoulders could be used for bikers to downtown Sayville.

Miscellaneous Comment 3*: All tables in the report should be labeled to clearly describe the condition or phase they represent.*

Response – All the tables in the traffic study and the appendices have been relabeled to clearly depict the condition or phase they represent.

Comment 1*: The response to comment 1 provide descriptions of conditions of the roadways as requested, but no discussion is provided of non-operational impacts of the increased traffic on roadway conditions. Per the report, the proposed project will generate 6400 additional daily trips, more than 5000 trips per day than under as of right conditions. Ninety two percent (92%) of these trips are expected to utilize Lakeland Avenue, while other facilities will experience lesser impacts. This will result in a 32% increase in total daily trips on Lakeland Avenue in the vicinity of the site frontage, which will shorten the service life of the facility and increase maintenance cost beyond as of right impacts. Similar proportional impacts can be expected on other area roadways.*

Response – Several measures to mitigate traffic impacts on Lakeland Avenue as outlined in the Traffic Study will be constructed by the developer. These improvements will mitigate the traffic impacts back to No Build Conditions or better. The increased tax revenues from the project will increase the funding for roadway maintenance. Hence the proposed mitigation and the increased tax revenues will help increase or maintain the service life of the roadways within the study area.

Comment 2*- The applicants 2019 response to comment 2 was the traffic data have been reviewed to ensure accuracy and consistency of the data. An errata sheet should be provided:*

Response: As stated in our previous response, the traffic data was reviewed to ensure accuracy and consistency. Very few inconsistencies were noticed, and they were not significant to change the results of the capacity analyses results presented in the Traffic Study. The table below shows the inconsistencies and the comparison of the level of service results.

TABLE 1: ERRATA SHEET – GENERAL REVIEW OF TRAFFIC VOLUMES

Analyses Phase	Intersection	Movement	Synchro	Traffic Volume Figures	Comments	
					Overall Intersection LOS	Individual Movements LOS
Saturday School Peak Existing	Montauk Highway at Gillette Ave	WBL	38	36	Intersection delay = 30.6 & LOS C - No change.	Total delay changed from 15.5 to 15.6 & LOS B maintained
AM School Peak P6 Build with OPD with Mitigation	Lakeland Avenue at NYS Route 27 South Service Road	SBT	429	434	Intersection delay = 25.5 & LOS C - No change	Total delay = 15.2 & LOS B maintained
	Lakeland Avenue at 11th Street	NBT	888	894	Intersection delay = 0.3 & LOS A - No change	LOS A maintained
		SBT	555	560		
	Lakeland Avenue at Tariff Street	WBL	86	93	Intersection delay = 30.3 & LOS C - No change.	Total delay changed from 56.9 to 57.9 & LOS = E did not change.
		NBR	137	153		Total delay changed from 3.5 to 3.4 & LOS A maintained
	Montauk Highway at Gillette Ave	SBR	88	99	Intersection delay changed from 25.7 to 25.8 & LOS C maintained.	Total delay changed from 25.6 to 26.4 & LOS C maintained
PM School Peak P6 Build with OPD with Mitigation	Lakeland Avenue At Tariff Street	SBR	186	183	Intersection delay changed from 50.2 to 50.1 & LOS D maintained.	Total delay changed from 29.3 to 29.1 & LOS C maintained
Saturday School Peak P6 Build with OPD with Mitigation	Montauk Highway at Gillette Ave	SBL	313	315	Intersection delay changed from 36.5 to 36.8 & LOS D maintained.	Total delay changed from 107.0 to 108.8 & LOS F maintained.

Comment 3*-The statement regarding injury crashes is inaccurate. The rate of injury related crashes (37%) is above that of similar facilities in New York, which was approximately 25% in 2018. Typically, crash analyses at signalized and unsignalized intersections are analyzed based on the number of millions of vehicles entering an intersection on all approaches during the course of a year, a rate referred to as the number of crashes per million entering vehicles, or crashes/MEV. Development under the proposed rezoning would result in approximately 1.5 million more new vehicles entering the intersection Lakeland Avenue at NY27 South Service Road per year than under current zoning. Other intersection locations would experience proportional increases.*

Response: As noted in the Traffic Study report and our 2019 responses to your traffic comments, three locations were identified (Sunrise Highway North Service Road at Lakeland Avenue, Lakeland Avenue between North Service Road and South Service Road and Sunrise Highway South Service Road at Lakeland Avenue) with accidents rates greater than the statewide average. These three locations experienced a total of 48 accidents over the 3-year period. Of the 48 crashes, 25 (52%) are rear-end collisions, 7 (15%) involved overtaking and 6 (12%) are unknown type accidents. As part of the proposed project, the following improvements have been proposed and will be constructed by the applicant to mitigate the traffic and safety impacts. Each improvement will be constructed at least before the construction of the phase of the project for which the mitigation is required.

- Widen Lakeland Avenue between Chester Road and 11th Street to provide an additional northbound through lane. The widening will begin around Eastover Road and extends to meet the existing 2 lane section of Lakeland Avenue just north of 11th Street.
- The segment of Lakeland Avenue between Eastover Road and Gibbons Court will be striped to provide two through lanes and one northbound left turn into the site access
- The southbound approach of this intersection of Lakeland Avenue at NYS Route 27 North Service Road which currently provides an exclusive through lane, a shared through/right turn lane and an exclusive right turn lane will be redesigned to provide two exclusives through lanes and two exclusive right turn lanes. Minor signal timing adjustments will also be conducted for the northbound left turn phase.

According to the 2018 New York State Department of Transportation Post Implementation Evaluation System (PIES) Reduction Factor Report, the addition of lanes may reduce injury accidents by 36%. Therefore, the physical or geometric improvements proposed on Lakeland Avenue as part of this project will improve safety on this corridor.

Comment 4, 5, 6 and 7*: No further information required.*

Response: We concur

Comment 8*: The discussion above (response to 2019 comment 8) indicates that the results of the SYNCHRO model compare favorably to field observations and can be reasonably expected to represent existing and future operating conditions, within the constraints of the model.*

Response: We concur

***Comment 9**: The arterial analyses results document numerous instances of low arterial speeds and congested conditions, which is keeping with conditions observed in the field. Mitigation proposed on Lakeland Avenue between Eastover Road and the NY27 North Service Road would serve to provide additional capacity sufficient to offset the project's impacts at those specific locations, and thus would improve or maintain No Build conditions representative of the overall performance of the Lakeland Avenue corridor. South of Eastover Road, however, vehicles will continue to have difficulty accessing Lakeland Avenue at unsignalized intersections. Field observations indicate periods of uninterrupted traffic flow along this segment of Lakeland Avenue that forces side street vehicles to utilize shorter gaps in traffic than might be preferred, which results in the need for vehicles on the arterial to brake. These conditions, which are not necessarily apparent based strictly on software results, can nevertheless be expected to be exacerbated by the additional traffic estimated by the proposed project.*

With respect to the mitigation discussed at the intersection of Lakeland Avenue/Johnson Avenue/Tariff Street, the proposed mitigation also appears feasible within the existing right of way.

Response: We concur

***Comment 10:** The response is considered adequate. Additional discussion of the operating conditions at the intersections in the vicinity of grade crossings and other locations referenced in the comment are addressed in other responses in this document. See Responses to comments #9 and #11.*

Response: We concur. No further information is required.

***Comment 11**: The additional mitigation is reasonable and warranted to improve operations on Lakeland Avenue between the site access and the NY27 South Service Road. The Traffic Study should be revised to reflect this additional mitigation including capacity analyses results. Right of Way availability should be determined to ascertain that the improvement can be constructed as shown, and property dedications should be made to accommodate the improvement, including connecting to the existing sidewalk on Lakeland Avenue.*

Operational concerns remain regarding Chester Avenue. Provision of a detection loop on intersection approach that is not directly controlled by the traffic signal is typically deployed when other measures to ensure safe operations are precluded by geography, topography or right of way constraints. In fact, NYSDOT no longer considers this configuration on signals under their control. Given its immediate proximity to the proposed main site access, and the fact that more than 90% of the site traffic is estimated to utilize that access, additional improvements should be considered, including providing Chester Road direct access to the signalized intersection at Lakeland Avenue at Gibbons Court/Site Access driveway. The existing east-west segment of Chester Road could be terminated at Lakeland Avenue, or the roadbed disposed by the town. It appears that the applicant controls ample property to provide this improvement, which would eliminate the need for the unconventional signal operation and provide a more efficient operations for vehicles utilizing Chester Road. Mitigations should be implemented coincident with the construction

of Phase 1.

Response: We concur that the additional mitigation is reasonable and warranted to improve operations on Lakeland Avenue between the site access and the NY27 South Service Road. The traffic study was revised to reflect this additional mitigation and any other recommended mitigation. The mitigation can be constructed within the existing right of way and property dedication will be made to accommodate the improvement, including connecting the existing sidewalk on Lakeland Avenue.

In addition to the mitigations proposed by the applicant, the town recommended the review of an alternative mitigation measure to eliminate the intersection of Lakeland Avenue and Chester Road. The east-west portion of Chester Road to be eliminated and access to Chester Road provided via a new intersection of Chester Road and the signalized Site Access. The intent of the mitigation measure is to eliminate the need for the unconventional signal operation and provide a more efficient operations for the vehicles at Chester Road.

As stated previously and agreed by the town, the mitigation measures proposed by the applicant for Phase 6 of the project are adequate to mitigate the impacts associated with Phase 6 of the project. However, the optional additional mitigation measure recommended by the Town to further improve the operation of the Lakeland Avenue corridor after the construction of Phase 6 of the project have been analyzed. The following tables summarizes the 95th percentile queue lengths on intersection movements along the Lakeland Avenue corridor in the vicinity of the site that will see increase in traffic volumes due to the proposed project. These tables present a comparison of the No Build, Build and Build with mitigations conditions during the weekday AM and PM school peak periods. It can be seen from the tables below that the reduction in the northbound queue lengths is not significantly different from the reduced queue lengths achieved by the mitigation proposed by the applicant under phase 6 presented in our 2019 responses to the Town's comments. Hence the additional mitigation recommended by the Town by itself will not further improve queues. However, this mitigation will eliminate the delays associated with the eastbound Chester Road traffic at Lakeland Avenue. Figure 31 is a conceptual plan of this alternative mitigation measure.

TABLE 2: 95TH PERCENTILE QUEUE LENGTHS – AM PEAK HOUR

Intersections			No Build Phase 6	Build Phase 6	Build Phase 6 with Mitigation*
Intersection	**Approach/ Movement.**	**Storage Length (FT)**	**95th % Queue Length (FT)**	**95th % Queue Length (FT)**	**95th % Queue Length (FT)**
Lakeland Avenue & NYS Route 27 South Service Road	EBR	150	54	65	43
	NBT		180	242	249
	NBR	270	122	137	139
	SBT		112	132	134
Lakeland Avenue & Gibbons Court	EBLT			152	178
	EBR			0	0
	WBLT		22	22	18
	WBR		28	22	0
	NBL	100		7	11
	NBTR		399	616	171
	SBR	125		11	22
Lakeland Avenue & Tariff Street/Johnson Avenue	EBL	155	161	162	162
	EBTR		124	140	140
	WBLTR		231	230	230
	NBL	125			40
	NBT		270	286	245
	NBR	125	37	39	37
	SBLTR		215	233	233

***- Phase 6 mitigations include:**

a. Redesign the intersection of NY 27 North Service Road at Lakeland Avenue to provide two exclusives through lanes and two exclusive right turn lanes. Minor signal timing adjustments will also be conducted for the northbound left turn phase – Mitigation for Phase 4

b. Widen the northbound approach at the intersection of Lakeland Avenue and Tariff Street/Johnson Avenue to provide an exclusive left turn lane enabling the redistribution of green time to improve the failing westbound approach – Mitigation for Phase 5

c. Widen Lakeland Avenue between Chester Road and 11th Street to provide an additional northbound through lane. The widening will begin around Eastover Road and extends to meet the existing 2 lane section of Lakeland Avenue just north of 11th Street.

d. Eliminate the intersection of Lakeland Avenue and Chester Road. The east-west portion of Chester Road will be eliminated and access to Chester Road will be provided via a new intersection of Chester Road and Signalized Access.

TABLE 3: 95TH PERCENTILE QUEUE LENGTHS – PM PEAK HOUR

Intersections			No Build Phase 6	Build Phase 6	Build Phase 6 with Mitigation
Intersection	**Approach/ Movement**	**Storage Length (FT)**	**Queue Length (FT)**	**Queue Length (FT)**	**Queue Length (FT)**
Lakeland Avenue & NYS Route 27 South Service Road	EBR	150	96	196	192
	NBT		174	213	225
	NBR	270	172	180	187
	SBT		117	176	205
Lakeland Avenue & Gibbons Court	EBLT			104	157
	EBR			0	0
	WBLT		29	30	32
	WBR		21	2	1
	NBL	100		11	12
	NBTR		309	480	137
	SBR	125		49	56
Lakeland Avenue & Tariff Street/Johnson Avenue	EBL	155	161	165	163
	EBTR		150	162	161
	WBLTR		492	496	517
	NBL	125			65
	NBT		346	563	290
	NBR	125	50	59	54
	SBLTR		506	531	531

***- Phase 6 mitigations include:**

a. Redesign the intersection of NY 27 North Service Road at Lakeland Avenue to provide two exclusives through lanes and two exclusive right turn lanes. Minor signal timing adjustments will also be conducted for the northbound left turn phase – Mitigation for Phase 4

b. Widen the northbound approach at the intersection of Lakeland Avenue and Tariff Street/Johnson Avenue to provide an exclusive left turn lane enabling the redistribution of green time to improve the failing westbound approach – Mitigation for Phase 5

c. Widen Lakeland Avenue between Chester Road and 11th Street to provide an additional northbound through lane. The widening will begin around Eastover Road and extends to meet the existing 2 lane section of Lakeland Avenue just north of 11th Street.

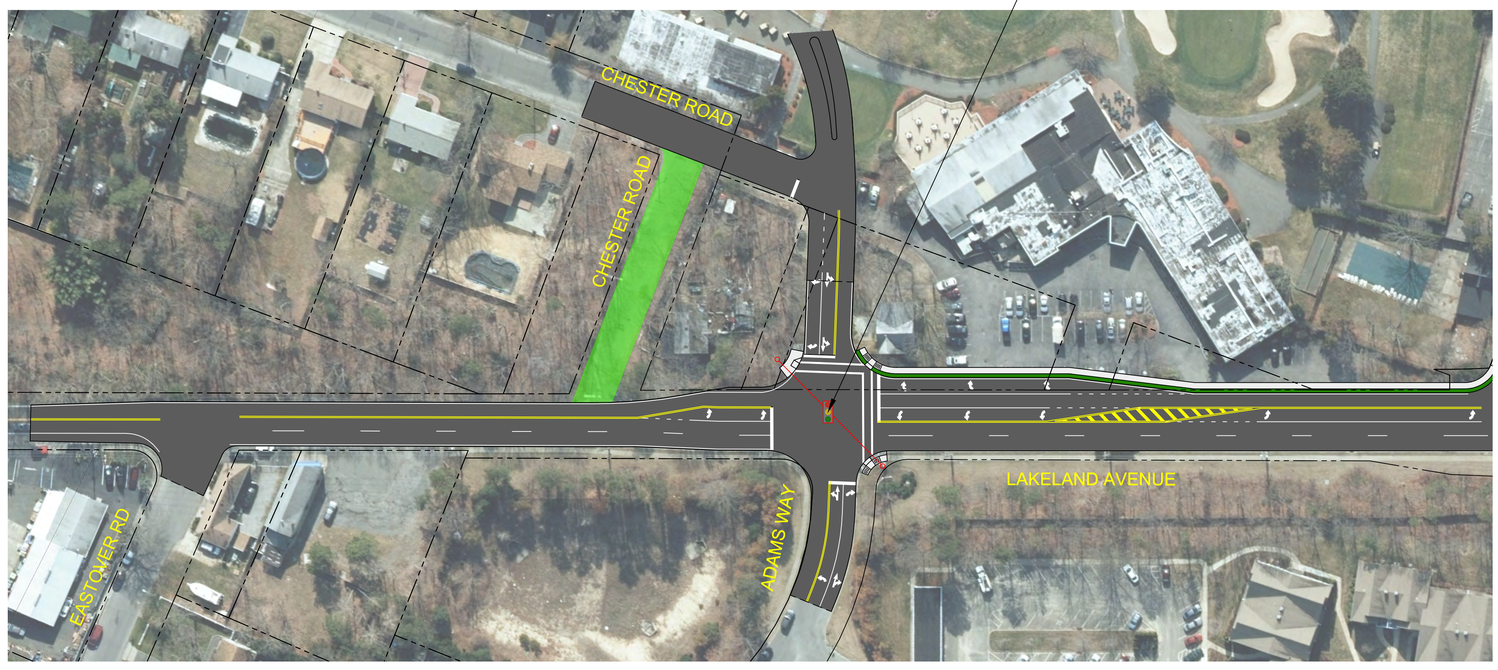
d. Eliminate the intersection of Lakeland Avenue and Chester Road. The east-west portion of Chester Road will be eliminated and access to Chester Road will be provided via a new intersection of Chester Road and Signalized Access.

60 0 30 60 120

GRAPHIC SCALE
(IN FEET)
1 INCH = 60 FEET

NORTH

EXISTING CONDITIONS



No.	DATE	REVISION	BY:
-	-	-	-/-

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CLIENT:
RECHLER EQUITY PARTNERS
PLAINVIEW, NEW YORK

DWN. BY:	EL
CHK'D BY:	RS
DATE:	2020-03-26
JOB No.:	16130
CADD:	CONCEPT PLAN
SCALE:	AS SHOWN

DRAWING TITLE:
FIGURE 31
CLOSURE OF CHESTER RD AT LAKELAND AVENUE
GREY BARN
AT ISLAND HILLS

DRAWING NUMBER:
FIG - 31

SHEET: 1 OF 1

Comment 12*: The revised report continues to maintain that private transit will be provided. Reference to private transit should be deleted from the study if it is not to be provided. If it is being considered, the above comment should be more adequately addressed. Note also that the provision of private transit is presented as mitigation to the project's impact on parking at the LIRR station.*

Response: The applicant is proposing to provide shuttle services to and from the LIRR during commuter peak hours. More details of the transit service will be worked out as the project progresses. The provision of private transit services will reduce the amount of traffic generated by the project and also mitigate the project's impact on parking at the LIRR.

Comment 13*: The response documents state that access will be provided as shown on the conceptual site plan. As stated in the report and above, the study is intended to evaluate potential impacts of the change of zone of the property from single family residential to Planned Development District. As such, it is our understanding that the site plan submitted is conceptual in nature and is intended to depict a potential development under the proposed zoning. The applicant's response implies that regardless of the ultimate configuration and density of the project, should the request for rezoning be approved, no other possible access scenarios will be considered. Given that the site has frontages on as many as eight (8) town roads, the opportunity exists to provide multiple access points that would spread site traffic over a number of facilities and thereby lessen impacts on any individual road.*

Response: The site has frontages along seven (7) town roads (11th Street, Bohemia Parkway, Terry Road, Starling Place, Carrie Avenue, Chester Road and Lakeland Avenue) and the northern terminus of Durham Road abuts the site. As presented in the traffic study, access to site will be provided via three (3) town roads, Lakeland Avenue, 11th Street and Terry Road. From a further review of the site and surrounding roadways, there is a potential to provide additional/alternative access points to the site on Bohemia Parkway, Starling Place, Carrie Avenue, Chester Road and extending Durham Road into the site. It should be noted that additional access points on these local roadways will most likely benefit traffic heading south into downtown Sayville. A vast majority of the traffic from the project will be travelling north, east or west and will use the three driveways already proposed. However, to respond to the town's comments, two alternative access points (along Carrie Avenue and Bohemia Parkway) has been analyzed. Some traffic originally distributed to the three driveways, especially traffic traveling south to downtown Sayville and traffic travelling west via the intersection of NY27 North Service Road and Smithtown Avenue was distributed to the two alternative access points. Traffic analyses were conducted for the weekday AM and PM peak periods for Phase 6 including the proposed winding of Lakeland Avenue and providing Chester Road direct access to the signalized site access with and without the two alternative access points. The following is a summary of traffic analyses results at the intersection of Lakeland Avenue at Gibbons Place/Site Access with and without the alternative access points.

TABLE 4: LOS RESULTS WITH AND WITHOUT ALTERNATIVE ACCESS POINTS – AM PEAK HOUR

Intersections		Build Phase 6 with OPD with Mitigation without Alternative Access Points[a]		Build Phase 6 with OPD with Mitigation with Alternative Access Points[b]	
Intersection	**Approach/Movement**	**Delay**	**LOS**	**Delay**	**LOS**
Lakeland Avenue at Gibbons Court/ Site Access	EBLT	30.2	C	29.5	C
	EBR	0.1	A	0.1	A
	WBLT	15.6	B	15.6	B
	WBR	0.5	A	0.5	A
	NBL	10	A	10	A
	NBTR	13.3	B	13.2	B
	SBL	9.9	A	9.9	A
	SBT	15.4	B	13.8	B
	SB R	2.2	A	2.2	A
Intersection		14.9	B	14.4	B

a- Includes widening of Lakeland Avenue and provide Chester Road direct access to signalized site access
b- Includes widening of Lakeland Avenue, provide Chester Road direct access to site signalized intersection and two additional alternative access points.

TABLE 5: LOS RESULTS WITH AND WITHOUT ALTERNATIVE ACCESS POINTS – PM PEAK HOUR

Intersections		Build Phase 6 with OPD with Mitigation without Alternative Access Points[a]		Build Phase 6 with OPD with Mitigation with Alternative Access Points[b]	
Intersection	**Approach/Movement**	**Delay**	**LOS**	**Delay**	**LOS**
Lakeland Avenue at Gibbons Court/ Site Access	EBLT	45.1	D	42.7	D
	EBR	0.3	A	0.2	A
	WBLT	27.5	C	27.4	C
	WBR	1.5	A	1.6	A
	NBL	5.4	A	5.2	A
	NBTR	10	A	9.8	A
	SBL	5.8	A	5.7	A
	SBT	19.4	B	19	B
	SB R	4.1	A	4.1	A
Intersection		15.5	B	15	B

a- Includes widening of Lakeland Avenue and provide Chester Road direct access to signalized site access
b- Includes widening of Lakeland Avenue, provide Chester Road direct access to site signalized intersection and two additional alternative access points.

From the review of the capacity analyses results, the alternative access points will not significantly improve the operation of the intersection of Lakeland Avenue and Gibbons Court/Site Access. The benefit of the alternative access points will be minimal.

Comment 14*: The vehicle queue direction in Table 30 is mislabeled. Railroad Avenue is a north-south facility, and the vehicle queues should be labelled as such. The response indicates that the Sim Traffic Analysis included the results of the railroad crossing simulation. A comparison of the Sim Traffic results with observed conditions should be provided to demonstrate that the modelling results reasonably reflect prevailing conditions. If necessary, the area immediately north and south of the LIRR crossing could be modelled as a sub-network so that it can be properly calibrated.*

Response: The vehicle queue direction table (originally Table 30 and now Table 6) has been relabeled with Railroad Avenue as a north-south roadway. Table 6 is the updated observed queue table.

TABLE 6: OBSERVED RAILROAD GATE DATA – RAILROAD AVENUE

Time	Direction	Gate Duration (sec)	Queue (vehicles)		Did Queues clear
			Northbound	Southbound	
6:05 (AM)	Eastbound	60	1	0	Yes
6:07	Westbound	60	0	5	Yes
6:56	Westbound	150	17	5	Yes
7:08	Westbound	60	1	11	Yes
7:27	Westbound	150	14	16	Yes
7:46	Westbound	50	2	1	Yes
8:07	Westbound	50	6	4	Yes
8:20	Eastbound	130	10	11	Yes
3:37 (PM)	Westbound	130	22	25	Yes
3:50	Westbound	45	7	9	Yes
4:04	Eastbound	150	24	26	Yes
4:29	Westbound	45	9	7	Yes
4:49	Westbound	70	14	20	Yes
4:56	Eastbound	130	20	24	Yes
5:33	Eastbound/Westbound	195	30	19	Yes
5:48	Eastbound	135	25	27	Yes
6:08	Eastbound	135	25	17	Yes
6:36	Westbound	60	21	14	Yes
6:41	Eastbound	150	21	11	Yes
7:09	Eastbound	140	17	19	Yes
7:21	Eastbound	125	17	9	Yes
7:45	Westbound	60	14	6	Yes
7:54	Eastbound	175	18	17	Yes

As can be seen in Table 6 above, the maximum observed northbound and southbound queues during the AM peak hours is 17 and 16 vehicles respectively. During the PM peak hour, the maximum observed northbound and southbound queue is 30 and 27 vehicles respectively. These queues were sometimes observed to block side streets. However, the queues always cleared upon the opening of the railroad gate. Traffic on Railroad Avenue was observed to flow smoothly with some delays when the railroad gate is open.

As requested, the Sim Traffic analyses of the railroad crossing simulation has been compared with the observed queues at the railroad crossing during the weekday AM and PM peak hours. Table 7 summarizes the maximum northbound and southbound queues at the railroad crossing obtained from the Sim Traffic simulation.

TABLE 7:SIM TRAFFIC SIMULATION RAILROAD GATE DATA RAILROAD AVENUE

Peak Period	Maximum Queue (feet)		Maximum Queue (vehicles)	
	Northbound	Southbound	Northbound	Southbound
AM	256	409	14	23
PM	250	669	14	37

Note – assumed 1 vehicle length is approximately 18 feet

As can be seen from the review of tables 6 and 7, the queues observed on Railroad Avenue in the vicinity of the railroad crossing during AM and PM peak hours are similar to those in the Sim Traffic Simulation, hence the modelling results reasonably reflect prevailing conditions.

Comment 15- LIRR Parking – *The response provides a reasonable estimate of the project's impact on available parking at the Sayville LIRR station. No Discussion of the demand due to the as of right development is provided., which is likely to be approximately 90% less than the projected demand under the proposed zoning.*

Based on the information provided in the report, demand for approximately 56 additional parking spaces can be expected at the Sayville station parking lots were the property developed as described in the submission.

The report notes that the station parking lot north of the LIRR is essentially at capacity under existing conditions, and the south lot is near capacity. The condition will be exacerbated by the increased demand.

The report states that private transit will be offered to offset the parking demand at the LIRR station, which contradicts other information in this submission. No other mitigation is offered.

The revised report continues to maintain that LIRR station parking will serve to meet parking demand for the downtown Sayville business area during weekend, when LIRR station demand is lower. Given the distance between the LIRR lots and the downtown area, this is considered unrealistic.

Response:
As stated in the previous responses, parking counts were collected at the LIRR station parking lots on Wednesday June 6th, 2018 from 7am to 8pm. Based on the review of the parking data, the peak parking demand of the LIRR parking lots occurred at 2pm with 497 of the 603 parking spaces occupied resulting in a minimum availability of 106 parking spaces at any given time of the day. Based on the parking study, the proposed residential development will generate a parking demand of 56 parking spaces at the Sayville LIRR station. The available 106 parking spaces will be adequate to support this parking demand. However, to mitigate any parking impact in the LIRR parking lots associated with the proposed project, the applicant is strongly reconsidering the provision of private shuttle bus (private transit) services to transport residents to and from the train station during the AM and PM commuter peak hours. The applicant will be working on the details of this service as the project moves along. Even though the available parking is adequate to support the peak parking demand of proposed project, the private transit service will further reduce the parking demand.

Comment 16- Municipal Parking
Development of the site under the proposed zoning will result in proportionally greater parking demand in the Downtown Sayville business district than would development as of right. While adequate parking exists, no mitigation is offered for the increased impact. If the applicant does not agree that the linear extrapolation is realistic, alternative methodology should be proposed and implemented to determine the project's potential impact on parking demand in the downtown business district. Such methodology could include surveys to determine the origins of patrons and visitors utilizing the municipal parking, so that the impact of the increase in the local population by 15% could be more accurately estimated, and mitigation of the project's impact on available municipal parking due to the proposed rezoning could be discussed.

Response:
Surveys to determine the origins of patrons and visitors utilizing the municipal parking is likely not feasible at this time but even if this linear extrapolation is considered, a 15% increase in the current 554 municipal parking spaces will result in an increase in demand of 83 parking spaces. Parking counts were collected at the municipal parking lots in Sayville on Wednesday June 6th, 2018 from 7am to 8pm. Based on the review of the parking data, the peak parking demand of the municipal parking lots occurred at 6 pm with 334 of the 554 parking spaces occupied resulting in a minimum availability of 220 parking spaces at any given time of the day. With the linear extrapolation approach, the available municipal parking spaces (220) is significantly higher than the estimated parking demand of 83 spaces. It is therefore our opinion that there will be adequate municipal parking in the downtown to support the estimated parking demand.

Comment 17- *The response is inadequate and further information is required. Currently prevailing congestion issues during school arrival and dismissal times identified in the study report will continue and be slightly exacerbated. Pick up and drop off queues at each school facility will lengthen somewhat, as will the time it takes for queues to dissipate. The impact will be commensurate with the proposal increase in traffic over as of right development.*

Development under the proposed zoning can be expected to result in approximately 90% more school aged children than under as of right zoning, with proportional increase in

transportation impacts, including school buses and private vehicles. The modal split of students travelling to and from the school facilities should be utilized to determine the number of additional school-based trips that will be generated by development. The impact of these additional trips on queueing and congestion at the school facilities should be estimated by distributing the new trips among the school facilities.

Also, school buses typically do not access private roads as proposed by the development. Where are the School Bus Stops on Lakeland likely to be?

Response: As detailed in our previous response, from our field observations at the three schools (Edward J. Bosti elementary School, Oakdale-Bohemia Middle School and Connetquot High School), Overall, all the school access points and drop-off/pick-up areas experienced some delays and traffic congestion during the drop-off and pick-up periods that lasted between 15 and 30 minutes. Outside these time periods no traffic congestion and traffic flow issues were observed. These types of conditions are common at many schools in Long Island.

To determine the level of impact the proposed development will have, if any, on school related transportation, an estimate of the number of potential number of school children that will reside at the development was determined. The proposed residential development contains a total of 1365 residential units. Based on the fiscal and economic analyses conducted for this project, a total of 210 school aged children will reside in this residential development. The as-of- right development of 98 single family homes will generate a total of 144 school aged children, 66 less than the proposed development. The 210 students will be distributed between the elementary, middle and high school. Based on the number of grades from K through 12, of the 210 school aged children, we estimated 97 elementary school children, 48 middle school children and 65 high school students. Based on this estimate, the elementary school children will generate between 2 and 3 school buses, the middle school children will generate between 1 and 2 buses and the high school students will generate between 1 and 2 buses.

Based on our field observations as noted above, the addition of few more school buses will not significantly impact traffic flow and congestion on the surrounding roadways and should not require any changes to the current bus routes. Data obtained from the Pre-K Through 12th Grade Nassau/Suffolk County School Enrollment for 2014 through 2019 show that the student enrollment at the Connetquot Central School District consistently declined over the five (5) school year periods. The Connetquot Central School District lost a total of 502 students over the 5-year period. Based on this trend and the current bus utilization, the additional students could be accommodated in the current bus fleet and hence may not require any changes to the current fleet. Additionally, any increases in the number of vehicles dropping off and picking up students, driving to and parking at the school facilities was included in the trip generation and distribution of traffic for the proposed project and hence will be reflected in the capacity analyses results of the study intersections. Any traffic flows and congestion issues at the school facilities are existing and only occur for a short period of time during the morning drop-off periods and the afternoon pick-up periods. The project traffic traveling to and from these school facilities should not significantly impact the current operation of the school facilities.

However, to improve the current traffic condition during the short period of time they occur, the following can be considered:

- Have more than one arrival and departure time per school (stagger the arrival and departure times by 30 minutes). This can be done by grades. For example, have Grade 3 thru 5 students arrive half an hour before Pre-K thru 2. This will help distribute traffic and relieve traffic congestion.
- Install signs along the drop off /pick up areas to encourage parents not to double park during drop off and pickups. This will improve traffic circulation and hence reduce traffic congestion.

With regards, to school bus stops on Lakeland Avenue, the applicant can provide a dedication along the site frontages on Lakeland Avenue and 11th Street for school bus stops.

Appendix F-3
LKMA TIS Review Memo to Town

October 13, 2020

LKMA

L. K. McLean Associates, P.C.

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MEMORANDUM

TO: Jessica Joyce, Senior Environmental Analyst
Sean Colgan, Principal Planner
Town of Islip Department of Planning and Development
655 Main Street
Islip, New York 11751

FROM: Vincent A. Corrado, PE Associate
Louis K. McLean Associates, PC

CC: Raymond G. DiBiase, PE, PTOE, PTP

DATE: October 13, 2020

RE: Greybarn-Sayville Planned Development District (Island Hills PDD)
W/S Lakeland Avenue, E/S Bohemia Parkway, E/S Hauppauge Road
Sayville, New York
LKMA 18027.002

This memorandum presents the results of our review of most recent documents provided in support of the above proposed project. L.K. McLean Associates PC (LKMA) has previously reviewed the report "Traffic Impact Study for Greybarn Sayville", prepared by Nelson and Pope Engineers and dated November 2018. The intent of the study report was to serve as the transportation element of the Draft Environmental Impact Study (DEIS) for the project, and to provide a comprehensive evaluation of the impact of travel demand generated by the development of the site under the proposed PDD zoning on the transportation system, as compared to development under the current Residence AAA zoning.

The results of our review of the original submission were provided in a memorandum dated April 19, 2019. Responses to these comments contained in the document "Response to Town Comments, Traffic Impact Study, Greybarn Sayville Planned Development District", dated September 2019, along with a revised Traffic Impact Study report, dated September 2019. Subsequent review comments of the September 2019 submission were provided in our February 2020 memorandum, and the applicant submitted the following documents in response:

- "Response to Town Comments, Traffic Impact Study Greybarn-Sayville PDD, May 2020", received from Nelson and Pope Engineers, Inc. June 18, 2020

- "Traffic Impact Study Greybarn-Sayville PDD, May 2020" received from Nelson and Pope Engineers, Inc. June 18, 2020

Note that a conceptual site plan dated December 2016 was included in the original submission. As noted in our prior communications, no detailed site plan review is included in this review effort, insofar as the development scenario remains conceptual in nature and is dependent on the rezoning of the site as discussed below. However, where appropriate or where site plan elements were referenced in the submissions, we have previously provided comments on aspects of the proposed site access etc. Although some of the applicant's responses would have impact on elements of the site design, no updates to the conceptual site plan have been provided since the original submission.

The memoranda documenting the above described review process are appended to this submission. The following sections provide the results of our review of the current submission.

Project Description and Background

The project is located on a 114-acre parcel located in Sayville, on the west side of Lakeland Avenue, south of 11th Street and east of Bohemia Parkway and north of Hauppauge Road. The site is currently developed as a golf course and related amenities, no longer operational, and known as the Island Hills Country Club. Development of the site as proposed would require changing the zoning of property from current Residential AAA to Planned Development District (PDD). The documentation submitted assumes development under the proposed zoning of a 1,365-unit residential community. As of right development under the current zoning would allow the construction of 98 single-family homes.

Based on the conceptual site plan prepared by Sidney B. Bowne and Son, LLP dated December 2016 and discussion in the report, the project proposes access to Lakeland Avenue, 11th Street and Hauppauge Road, all of which are Town of Islip Highway facilities. Access to Lakeland Avenue is shown on the conceptual plan opposite an existing residential development roadway known as Gibbons Court, which forms a signalized intersection with Lakeland Avenue. The proposed site access is to form the fourth eastbound leg of the signalized intersection, and to serve as the main point of access to the proposed project. All other proposed access points are shown to be stop sign controlled.

As discussed in the study report, 98 single-family homes could be developed on the 114-acre parcel under the current zoning. Development under current zoning is estimated in the study report to potentially generate an estimated 1,240 Vehicle Trip Ends (VTE) per day. The study report further estimates that development of the site as proposed under the PDD zoning could be expected to generate approximately 6,400 new VTE per day. Thus, the proposed rezoning and development of the site under the requested PDD zoning represents approximately 400% more new trips added to the adjacent roadways than as of right development.

Specifically, during the weekday AM peak hour, 98 single family homes would generate 74 total vehicle trips, 18 entering and 56 exiting the property, while development under the PDD zoning would generate 492 trips, 127 entering and 365 exiting. During the weekday PM peak hour, as of right development would generate 100 total trips (62 entering and 37 exiting trips) while the proposed PDD would generate 601 trips, 365 entering and 236 exiting. Finally, during the Saturday midday peak hour, as of right

development of the site would generate 100 total trips, 54 entering and 46 exiting, while under the proposed PDD zoning, 601 trips would be added to the roadway network, 294 entering trips and 307 exiting trips.

The applicant offers the following improvements as mitigation to the project's impact on the transportation system:

- Widen Lakeland Avenue between Chester Road and 11th Street to provide an additional northbound through lane. The widening will begin around Eastover Road and extends to meet the existing 2 lane section of Lakeland Avenue just north of 11th Street.
- The segment of Lakeland Avenue between Eastover Road and Gibbons Court will be striped to provide two through lanes and one northbound left turn into the site access
- The southbound approach of this intersection of Lakeland Avenue at NYS Route 27 North Service Road which currently provides an exclusive through lane, a shared through/right turn lane and an exclusive right turn lane will be redesigned to provide two exclusives through lanes and two exclusive right turn lanes. Minor signal timing adjustments will also be conducted for the northbound left turn phase.

Additional discussion of mitigation offered is provided in subsequent sections of this document.

The following sections provide the detailed results of our review of the submitted documents. Following the resolution of the remaining comments and corrections contained herein, the Traffic Impact Study should be revised to incorporate all the information provided in the comment response documents. For ease of review, we have provided our original comment, followed by the applicant's response, and our additional comments as appropriate.

LKMA October 2020 General Comments

It is recognized that, since the inception of the review process for this project, traffic patterns in the study area have been significantly disrupted by the onset of the COVID19 pandemic, and are likely to remain so for at least the foreseeable near future. Furthermore, even after the pandemic eases, many changes in travel patterns, including school, work and recreation related travel, may have permanent impact. According to the report, the project, if approved as described, will be constructed in six (6) phases, which is appropriate for projects of a magnitude that represent significant intensification of existing or as of right development of a property. As is common in such projects, additional studies should be conducted prior to commencement of construction of each subsequent phase in order to verify assumptions that were made during the conduct of the traffic study that formed the basis for establishing future conditions as well as to evaluate the effectiveness of mitigation measures implemented to offset the project's impact. This is particularly important given the current disruption to normal traffic patterns due to the COVID19 pandemic and the likely long term impact on work, school and recreation trips.

The report discusses mitigation of the traffic impacts identified through the analyses conducted for the Traffic Impact Study, some of which will impact on roadways controlled by other agencies. Lakeland Avenue is a Suffolk County highway (CR93) north of NY27 Sunrise Highway, and both NY27 Service Roads are under the jurisdiction of the New York State Department of Transportation. As such, any mitigation on those roadways is subject to review and approval by the controlling agencies, which approval should be obtained prior to commencement of any project on the subject site. In addition, it is recommended that all mitigation be

implemented prior to or in conjunction with the first phase of any project. Obviously, allowances can be made to ensure that impacts during construction are considered.

LKMA Review of June 2020 Submission

Responses to Miscellaneous Comments

LKMA February 2020 Miscellaneous Comment 1 *- In general, the responses offered continue to lack a specific comparison of impacts between the proposed development and as of right development, which would generate relatively little traffic, and can generally be assumed to be reflected in the background traffic growth rate. Therefore, for the purposes of this review, the No Build condition is considered the rough equivalent of the as of right impacts.*

Applicant June 2020 Response – The impact of the as of right developments should be greater than the No Build Condition. Hence, we agree that the as of right development impacts can generally be assumed to be reflected in the background growth rate and hence the No Build analyses can be considered as a rough equivalent of the as of right impacts.

LKMA October 2020 Comment – On this basis, impacts beyond the No Build are assumed to be attributable to development under the proposed rezoning. Tables are attached that show the changes in traffic volumes at the 36 intersections included in the study report, as well as the percent increase in traffic between the 2026 No Build and Build condition, based on the traffic flow maps included in the report. As can be seen, significant increases in traffic volumes could be expected to occur due to development under the proposed zoning. While the intersection capacity analyses conducted for the purposes of the study indicate that capacity is largely available to accommodate the traffic increases, additional traffic volumes at some intersections of over 150% of existing are predicted. These traffic increases have impacts beyond capacity, including noise and air quality impacts, which are beyond the purview of this review.

It is noted that anomalies in the predicted traffic flows were identified during this review which seem to indicate that traffic volumes at certain intersections are expected to decrease after the project is fully built out. These anomalies should be investigated and / or corrected. Capacity analyses should be rechecked to ensure that the correct traffic volumes have been utilized in the analyses.

LKMA February 2020 Miscellaneous Comment 2 *- As per our prior comments, no specific site plan review is included in this memorandum, insofar as the development scenario is conceptual in nature and is dependent on the rezoning of the site as discussed below. However, where appropriate, we have provided comments on certain aspects of the proposed project that are described in the report.*

Note also that the report, provides no discussion of pedestrian or bicycle activities, or proposed accommodations thereof, either on site or external to the site. The location of the project at the extreme northern end of the Sayville community does not particularly lend itself to pedestrian connectivity to the downtown or waterfront recreational areas, but pedestrian connectivity to the community at large is increasingly important as the limits of motor vehicle capacity are approached. Any proposed site configuration should include full width sidewalks on all site frontages, preferably five (5) feet wide, and full ADA compliant pedestrian facilities. In addition, depending on right of way availability, bike lanes should be considered, both internal and external to the site. At a minimum, travel lanes within the site

should be 14' wide to accommodate bikes, or shared use paths considered with logical connection points to routes to local schools.

Applicant June 2020 Response – Any proposed site configuration will include full width sidewalks throughout the entire site. The conceptual layout plan shows a trail/path throughout the site for pedestrian use. Sidewalks currently exist along the entire west side of the Lakeland Avenue segment between Chester Road and Montauk Highway. For pedestrian connectivity, the applicant will install sidewalks along the site frontage on Lakeland Avenue (between 11th Street and Chester Road) to connect onto the existing sidewalks. With the proposed sidewalks, the entire west side of Lakeland Avenue between the NY 27 Service Roads and Montauk Highway will have continuous sidewalks. Most sections of the eastside Lakeland Avenue segment between NYS 27 Service Roads and Montauk Highway contain sidewalks. Lakeland Avenue between Chester Road and the Railroad tracks has at least 7 feet shoulders. The applicant will provide shoulders on the west side of Lakeland Avenue between the site access and Chester Road to connect to the existing shoulders. These shoulders could be used for bikers to downtown Sayville.

LKMA October 2020 Comment – The December 2016 site plan is very conceptual in nature, as stated. The plan shows numerous points of connectivity between the internal pedestrian / bicycle path and surrounding town roadways. Future site plan submissions for any project of this nature should ensure pedestrian and bicycle connectivity between the development and the community including additional ADA compliant sidewalk and pedestrian ramps along other site frontages, with particular emphasis on access to Bosti Elementary School.

LKMA Miscellaneous Comment 3 *- All tables in the report should be labeled to clearly describe the condition or phase they represent.*

Applicant June 2020 Response - All the tables in the traffic study and the appendices have been relabeled to clearly depict the condition or phase they represent.

LKMA October 2020 Comment – Spot checks indicate corrections have been made. No additional information is required.

Responses to Detailed Comments

LKMA February 2020 Comment 1 *- The response to comment 1 (from LKMA April 2019 memorandum) provide descriptions of conditions of the roadways as requested, but no discussion is provided of non-operational impacts of the increased traffic on roadway conditions. Per the report, the proposed project will generate 6400 additional daily trips, more than 5000 trips per day than under as of right conditions. Ninety-two percent (92%) of these trips are expected to utilize Lakeland Avenue, while other facilities will experience lesser impacts. This will result in a 32% increase in total daily trips on Lakeland Avenue in the vicinity of the site frontage, which will shorten the service life of the facility and increase maintenance cost beyond as of right impacts. Similar proportional impacts can be expected on other area roadways.*

Applicant June 2020 Response - Several measures to mitigate traffic impacts on Lakeland Avenue as outlined in the Traffic Study will be constructed by the developer. These improvements will mitigate the traffic impacts back to No Build Conditions or better. The increased tax revenues from the project will

increase the funding for roadway maintenance. Hence the proposed mitigation and the increased tax revenues will help increase or maintain the service life of the roadways within the study area.

LKMA October 2020 Comment - It should be noted that, as previously stated, the submission is assumed to represent an analysis of all the proposed project's impacts on the transportation system, not limited to traffic impacts alone. The project as proposed will generate significantly more traffic than would as of right development, and would therefore have commensurate increased impact on the physical condition of the system. Matters of taxation are considered beyond LKMA's purview with regard to transportation impacts. We defer to Town staff in this regard.

LKMA February 2020 Comment 2 *- The applicants 2019 response to comment 2 (from LKMA April 2019 memorandum) was the traffic data have been reviewed to ensure accuracy and consistency of the data. An errata sheet should be provided.*

Applicant June 2020 Response - As stated in our previous response, the traffic data was reviewed to ensure accuracy and consistency. Very few inconsistencies were noticed, and they were not significant to change the results of the capacity analyses results presented in the Traffic Study. The table below shows the inconsistencies and the comparison of the level of service results.

TABLE 1: ERRATA SHEET – GENERAL REVIEW OF TRAFFIC VOLUMES

Analyses Phase	Intersection	Movement	Synchro	Traffic Volume Figures	Comments	
					Overall Intersection LOS	Individual Movements LOS
Saturday School Peak Existing	Montauk Highway at Gillette Ave	WBL	38	36	Intersection delay = 30.6 & LOS C - No change.	Total delay changed from 15.5 to 15.6 & LOS B maintained
AM School Peak P6 Build with OPD with Mitigation	Lakeland Avenue at NYS Route 27 South Service Road	SBT	429	434	Intersection delay = 25.5 & LOS C - No change	Total delay = 15.2 & LOS B maintained
	Lakeland Avenue at 11th Street	NBT	888	894	Intersection delay = 0.3 & LOS A - No change	LOS A maintained
		SBT	555	560		
	Lakeland Avenue at Tariff Street	WBL	86	93	Intersection delay = 30.3 & LOS C - No change.	Total delay changed from 56.9 to 57.9 & LOS = E did not change.
		NBR	137	153		Total delay changed from 3.5 to 3.4 & LOS A maintained
	Montauk Highway at Gillette Ave	SBR	88	99	Intersection delay changed from 25.7 to 25.8 & LOS C maintained.	Total delay changed from 25.6 to 26.4 & LOS C maintained
PM School Peak P6 Build with OPD with Mitigation	Lakeland Avenue At Tariff Street	SBR	186	183	Intersection delay changed from 50.2 to 50.1 & LOS D maintained.	Total delay changed from 29.3 to 29.1 & LOS C maintained
Saturday School Peak P6 Build with OPD with Mitigation	Montauk Highway at Gillette Ave	SBL	313	315	Intersection delay changed from 36.5 to 36.8 & LOS D maintained.	Total delay changed from 107.0 to 108.8 & LOS F maintained.

LKMA October 2020 Comment - LKMA has again reviewed the traffic flow maps included in the appendices of the Traffic Impact Study and performed a comparison between the future 2026 No Build and Build conditions. This review has identified a small number of anomalies in the predicted traffic flows, some of which seem to indicate that traffic volumes at certain intersections are expected to decrease after the project is fully built out. See also Miscellaneous Comment #1, above.

LKMA February 2020 Comment 3 *-The statement regarding injury crashes is inaccurate. The rate of injury related crashes (37%) is above that of similar facilities in New York, which was approximately 25% in 2018. Typically, crash analyses at signalized and unsignalized intersections are analyzed based on the number of millions of vehicles entering an intersection on all approaches during the course of a year, a rate referred to as the number of crashes per million entering vehicles, or crashes/MEV. Development under the proposed rezoning would result in approximately 1.5 million more new vehicles entering the intersection Lakeland Avenue at NY27 South Service Road per year than under current zoning. Other intersection locations would experience proportional increases.*

Applicant June 2020 Response - As noted in the Traffic Study report and our 2019 responses to your traffic comments, three locations were identified (Sunrise Highway North Service Road at Lakeland Avenue, Lakeland Avenue between North Service Road and South Service Road and Sunrise Highway South Service Road at Lakeland Avenue) with accidents rates greater than the statewide average. These three locations experienced a total of 48 accidents over the 3-year period. Of the 48 crashes, 25 (52%) are rear-end collisions, 7 (15%) involved overtaking and 6 (12%) are unknown type accidents. As part of the proposed project, the following improvements have been proposed and will be constructed by the applicant to mitigate the traffic and safety impacts. Each improvement will be constructed at least before the construction of the phase of the project for which the mitigation is required.

- Widen Lakeland Avenue between Chester Road and 11th Street to provide an additional northbound through lane. The widening will begin around Eastover Road and extends to meet the existing 2 lane section of Lakeland Avenue just north of 11th Street.
- The segment of Lakeland Avenue between Eastover Road and Gibbons Court will be striped to provide two through lanes and one northbound left turn into the site access
- The southbound approach of this intersection of Lakeland Avenue at NYS Route 27 North Service Road which currently provides an exclusive through lane, a shared through/right turn lane and an exclusive right turn lane will be redesigned to provide two exclusives through lanes and two exclusive right turn lanes. Minor signal timing adjustments will also be conducted for the northbound left turn phase.

According to the 2018 New York State Department of Transportation Post Implementation Evaluation System (PIES) Reduction Factor Report, the addition of lanes may reduce injury accidents by 36%. Therefore, the physical or geometric improvements proposed on Lakeland Avenue as part of this project will improve safety on this corridor.

LKMA October 2020 Comment - As stated above, all mitigation must be reviewed and approved by agencies with jurisdiction over the facilities in question, and should be constructed prior to or in conjunction with the first phase of any project. Mitigation on Town roads should be designed to Town standards and specifications.

LKMA February 2020 Comment 4, 5, 6 and 7 - *No further information required.*

LKMA February 2020 Comment 8*: The discussion above (response to 2019 comment 8) indicates that the results of the SYNCHRO model compare favorably to field observations and can be reasonably expected to represent existing and future operating conditions, within the constraints of the model.*

Applicant June 2020 Response: We concur

LKMA October 2020 Comment - See comment #2 above. SYNCHRO model may need modification based on any findings of additional quality reviews.

LKMA February 2020 Comment 9 - The arterial analyses results document numerous instances of low arterial speeds and congested conditions, which is keeping with conditions observed in the field. Mitigation proposed on Lakeland Avenue between Eastover Road and the NY27 North Service Road would serve to provide additional capacity sufficient to offset the project's impacts at those specific locations, and thus would improve or maintain No Build conditions representative of the overall performance of the Lakeland Avenue corridor. South of Eastover Road, however, vehicles will continue to have difficulty accessing Lakeland Avenue at unsignalized intersections. Field observations indicate periods of uninterrupted traffic flow along this segment of Lakeland Avenue that forces side street vehicles to utilize shorter gaps in traffic than might be preferred, which results in the need for vehicles on the arterial to brake. These conditions, which are not necessarily apparent based strictly on software results, can nevertheless be expected to be exacerbated by the additional traffic estimated by the proposed project.

With respect to the mitigation discussed at the intersection of Lakeland Avenue/Johnson Avenue/Tariff Street, the proposed mitigation also appears feasible within the existing right of way.

Applicant June 2020 Response - We concur

LKMA October 2020 Comment- Any roadway improvements should include pedestrian accommodations fully compliant with the requirements of the Americans with Disabilities Act, including pedestrian ramps, sidewalks and signals. As per prior comments, any proposed mitigation should be implemented in conjunction with the beginning of construction of the project. The conditions described in our comment regarding operational difficulties on Lakeland Avenue should be further investigated during subsequent traffic studies, per the discussion in the General Comments section, above.

LKMA February 2020 Comment *10* - *The response is considered adequate. Additional discussion of the operating conditions at the intersections in the vicinity of grade crossings and other locations referenced in the comment are addressed in other responses in this document. See Responses to comments #9 and #11.*

Response: We concur. No further information is required.

LKMA October 2020 Comment – See also comment #14, below.

LKMA February 2020 Comment 11*: The additional mitigation is reasonable and warranted to improve operations on Lakeland Avenue between the site access and the NY27 South Service Road.*

The Traffic Study should be revised to reflect this additional mitigation including capacity analyses results. Right of Way availability should be determined to ascertain that the improvement can be constructed as shown, and property dedications should be made to accommodate the improvement, including connecting to the existing sidewalk on Lakeland Avenue.

Operational concerns remain regarding Chester Avenue. Provision of a detection loop on intersection approach that is not directly controlled by the traffic signal is typically deployed when other measures to ensure safe operations are precluded by geography, topography or right of way constraints. In fact, NYSDOT no longer considers this configuration on signals under their control. Given its immediate proximity to the proposed main site access, and the fact that more than 90% of the site traffic is estimated to utilize that access, additional improvements should be considered, including providing Chester Road direct access to the signalized intersection at Lakeland Avenue at Gibbons Court/Site Access driveway. The existing east-west segment of Chester Road could be terminated at Lakeland Avenue, or the roadbed disposed by the town. It appears that the applicant controls ample property to provide this improvement, which would eliminate the need for the unconventional signal operation and provide more efficient operations for vehicles utilizing Chester Road. Mitigations should be implemented coincident with the construction of Phase 1.

Applicant June 2020 Response - We concur that the additional mitigation is reasonable and warranted to improve operations on Lakeland Avenue between the site access and the NY27 South Service Road. The traffic study was revised to reflect this additional mitigation and any other recommended mitigation. The mitigation can be constructed within the existing right of way and property dedication will be made to accommodate the improvement, including connecting the existing sidewalk on Lakeland Avenue.

In addition to the mitigations proposed by the applicant, the town recommended the review of an alternative mitigation measure to eliminate the intersection of Lakeland Avenue and Chester Road. The east-west portion of Chester Road to be eliminated and access to Chester Road provided via a new intersection of Chester Road and the signalized Site Access. The intent of the mitigation measure is to eliminate the need for the unconventional signal operation and provide a more efficient operations for the vehicles at Chester Road.

As stated previously and agreed by the town, the mitigation measures proposed by the applicant for Phase 6 of the project are adequate to mitigate the impacts associated with Phase 6 of the project. However, the optional additional mitigation measure recommended by the Town to further improve the operation of the Lakeland Avenue corridor after the construction of Phase 6 of the project have been analyzed. The following tables summarizes the 95th percentile queue lengths on intersection movements along the Lakeland Avenue corridor in the vicinity of the site that will see increase in traffic volumes due to the proposed project. These tables present a comparison of the No Build, Build and Build with mitigations conditions during the weekday AM and PM school peak periods. It can be seen from the tables below that the reduction in the northbound queue lengths is not significantly different from the

reduced queue lengths achieved by the mitigation proposed by the applicant under phase 6 presented in our 2019 responses to the Town's comments. Hence the additional mitigation recommended by the Town by itself will not further improve queues. However, this mitigation will eliminate the delays associated with the eastbound Chester Road traffic at Lakeland Avenue. Figure 31 is a conceptual plan of this alternative mitigation measure. **(Figure 31 is provided as an attachment)**

TABLE 2: 95TH PERCENTILE QUEUE LENGTHS – AM PEAK HOUR

Intersections			No Build Phase 6	Build Phase 6	Build Phase 6 with Mitigation*
Intersection	**Approach/ Movement.**	**Storage Length (FT)**	**95th % Queue Length (FT)**	**95th % Queue Length (FT)**	**95th % Queue Length (FT)**
Lakeland Avenue & NYS Route 27 South Service Road	EBR	150	54	65	43
	NBT		180	242	249
	NBR	270	122	137	139
	SBT		112	132	134
Lakeland Avenue & Gibbons Court	EBLT			152	178
	EBR			0	0
	WBLT		22	22	18
	WBR		28	22	0
	NBL	100		7	11
	NBTR		399	616	171
	SBR	125		11	22
Lakeland Avenue & Tariff Street/Johnson Avenue	EBL	155	161	162	162
	EBTR		124	140	140
	WBLTR		231	230	230
	NBL	125			40
	NBT		270	286	245
	NBR	125	37	39	37
	SBLTR		215	233	233

***- Phase 6 mitigations include:**

a. Redesign the intersection of NY 27 North Service Road at Lakeland Avenue to provide two exclusives through lanes and two exclusive right turn lanes. Minor signal timing adjustments will also be conducted for the northbound left turn phase – Mitigation for Phase 4

b. Widen the northbound approach at the intersection of Lakeland Avenue and Tariff Street/Johnson Avenue to provide an exclusive left turn lane enabling the redistribution of green time to improve the failing westbound approach – Mitigation for Phase 5

c. Widen Lakeland Avenue between Chester Road and 11th Street to provide an additional northbound through lane. The widening will begin around Eastover Road and extends to meet the existing 2 lane section of Lakeland Avenue just north of 11th Street.

d. Eliminate the intersection of Lakeland Avenue and Chester Road. The east-west portion of Chester Road will be eliminated and access to Chester Road will be provided via a new intersection of Chester Road and Signalized Access.

TABLE 3: 95TH PERCENTILE QUEUE LENGTHS – PM PEAK HOUR					
Intersections			No Build Phase 6	Build Phase 6	Build Phase 6 with Mitigation
Intersection	Approach/ Movement	Storage Length (FT)	Queue Length (FT)	Queue Length (FT)	Queue Length (FT)
Lakeland Avenue & NYS Route 27 South Service Road	EBR	150	96	196	192
	NBT		174	213	225
	NBR	270	172	180	187
	SBT		117	176	205
Lakeland Avenue & Gibbons Court	EBLT			104	157
	EBR			0	0
	WBLT		29	30	32
	WBR		21	2	1
	NBL	100		11	12
	NBTR		309	480	137
	SBR	125		49	56
Lakeland Avenue & Tariff Street/Johnson Avenue	EBL	155	161	165	163
	EBTR		150	162	161
	WBLTR		492	496	517
	NBL	125			65
	NBT		346	563	290
	NBR	125	50	59	54
	SBLTR		506	531	531

***- Phase 6 mitigations include:**

a. Redesign the intersection of NY 27 North Service Road at Lakeland Avenue to provide two exclusives through lanes and two exclusive right turn lanes. Minor signal timing adjustments will also be conducted for the northbound left turn phase – Mitigation for Phase 4

b. Widen the northbound approach at the intersection of Lakeland Avenue and Tariff Street/Johnson Avenue to provide an exclusive left turn lane enabling the redistribution of green time to improve the failing westbound approach – Mitigation for Phase 5

c. Widen Lakeland Avenue between Chester Road and 11th Street to provide an additional northbound through lane. The widening will begin around Eastover Road and extends to meet the existing 2 lane section of Lakeland Avenue just north of 11th Street.

d. Eliminate the intersection of Lakeland Avenue and Chester Road. The east-west portion of Chester Road will be eliminated and access to Chester Road will be provided via a new intersection of Chester Road and Signalized Access.

LKMA October 2020 Comment – As noted, the information provided indicates that the alternative mitigation would reduce queue lengths, and would also eliminate delays on Chester Road.

LKMA February 2020 Comment 12 *- The revised report continues to maintain that private transit will be provided. Reference to private transit should be deleted from the study if it is not to be provided. If it is being considered, the above comment should be more adequately addressed. Note also that the provision of private transit is presented as mitigation to the project's impact on parking at the LIRR station.*

Applicant June 2020 Response - The applicant is proposing to provide shuttle services to and from the LIRR during commuter peak hours. More details of the transit service will be worked out as the project progresses. The provision of private transit services will reduce the amount of traffic generated by the project and also mitigate the project's impact on parking at the LIRR.

LKMA October 2020 Comment – Response noted.

LKMA February 2020 Comment *13* - *The response documents state that access will be provided as shown on the conceptual site plan. As stated in the report and above, the study is intended to evaluate potential impacts of the change of zone of the property from single family residential to Planned Development District. As such, it is our understanding that the site plan submitted is conceptual in nature and is intended to depict a potential development under the proposed zoning. The applicant's response implies that regardless of the ultimate configuration and density of the project, should the request for rezoning be approved, no other possible access scenarios will be considered. Given that the site has frontages on as many as eight (8) town roads, the opportunity exists to provide multiple access points that would spread site traffic over a number of facilities and thereby lessen impacts on any individual road.*

Applicant June 2020 Response - The site has frontages along seven (7) town roads (11th Street, Bohemia Parkway, Terry Road, Starling Place, Carrie Avenue, Chester Road and Lakeland Avenue) and the northern terminus of Durham Road abuts the site. As presented in the traffic study, access to site will be provided via three (3) town roads, Lakeland Avenue, 11th Street and Terry Road. From a further review of the site and surrounding roadways, there is a potential to provide additional/alternative access points to the site on Bohemia Parkway, Starling Place, Carrie Avenue, Chester Road and extending Durham Road into the site. It should be noted that additional access points on these local roadways will most likely benefit traffic heading south into downtown Sayville. A vast majority of the traffic from the project will be travelling north, east or west and will use the three driveways already proposed. However, to respond to the town's comments, two alternative access points (along Carrie Avenue and Bohemia Parkway) has been analyzed. Some traffic originally distributed to the three driveways, especially traffic traveling south to downtown Sayville and traffic travelling west via the intersection of NY27 North Service Road and Smithtown Avenue was distributed to the two alternative access points. Traffic analyses were conducted for the weekday AM and PM peak periods for Phase 6 including the proposed winding of Lakeland Avenue and providing Chester Road direct access to the signalized site access with and without the two alternative access points. The following is a summary of traffic analyses results at the intersection of Lakeland Avenue at Gibbons Place/Site Access with and without the alternative access points.

TABLE 4: LOS RESULTS WITH AND WITHOUT ALTERNATIVE ACCESS POINTS – AM PEAK HOUR

Intersections		Build Phase 6 with OPD with Mitigation without Alternative Access Points[a]		Build Phase 6 with OPD with Mitigation with Alternative Access Points[b]	
Intersection	**Approach/Movement**	**Delay**	**LOS**	**Delay**	**LOS**
Lakeland Avenue at Gibbons Court/ Site Access	EBLT	30.2	C	29.5	C
	EBR	0.1	A	0.1	A
	WBLT	15.6	B	15.6	B
	WBR	0.5	A	0.5	A
	NBL	10	A	10	A
	NBTR	13.3	B	13.2	B
	SBL	9.9	A	9.9	A
	SBT	15.4	B	13.8	B
	SB R	2.2	A	2.2	A
Intersection		14.9	B	14.4	B

a- Includes widening of Lakeland Avenue and provide Chester Road direct access to signalized site access
b- Includes widening of Lakeland Avenue, provide Chester Road direct access to site signalized intersection and two additional alternative access points.

TABLE 5: LOS RESULTS WITH AND WITHOUT ALTERNATIVE ACCESS POINTS – PM PEAK HOUR

Intersections		Build Phase 6 with OPD with Mitigation without Alternative Access Points[a]		Build Phase 6 with OPD with Mitigation with Alternative Access Points[b]	
Intersection	**Approach/Movement**	**Delay**	**LOS**	**Delay**	**LOS**
Lakeland Avenue at Gibbons Court/ Site Access	EBLT	45.1	D	42.7	D
	EBR	0.3	A	0.2	A
	WBLT	27.5	C	27.4	C
	WBR	1.5	A	1.6	A
	NBL	5.4	A	5.2	A
	NBTR	10	A	9.8	A
	SBL	5.8	A	5.7	A
	SBT	19.4	B	19	B
	SB R	4.1	A	4.1	A
Intersection		15.5	B	15	B

a- Includes widening of Lakeland Avenue and provide Chester Road direct access to signalized site access
b- Includes widening of Lakeland Avenue, provide Chester Road direct access to site signalized intersection and two additional alternative access points.

From the review of the capacity analyses results, the alternative access points will not significantly improve the operation of the intersection of Lakeland Avenue and Gibbons Court/Site Access. The benefit of the alternative access points will be minimal.

LKMA October 2020 Comment – Response noted. No formal site plan review has been conducted. Ultimate configuration of access points and site design are subject to review at such time as a formal site plan submission is made.

LKMA February 2020 Comment *14* - *The vehicle queue direction in Table 30 is mislabeled. Railroad Avenue is a north-south facility, and the vehicle queues should be labelled as such. The response indicates that the Sim Traffic Analysis included the results of the railroad crossing simulation. A comparison of the Sim Traffic results with observed conditions should be provided to demonstrate that the modelling results reasonably reflect prevailing conditions. If necessary, the area immediately north and south of the LIRR crossing could be modelled as a sub-network so that it can be properly calibrated.*

Applicant June 2020 Response - The vehicle queue direction table (originally Table 30 and now Table 6) has been relabeled with Railroad Avenue as a north-south roadway. Table 6 is the updated observed queue table.

TABLE 6: OBSERVED RAILROAD GATE DATA – RAILROAD AVENUE

Time	Direction	Gate Duration (sec)	Queue (vehicles)		Did Queues clear
			Northbound	Southbound	
6:05 (AM)	Eastbound	60	1	0	Yes
6:07	Westbound	60	0	5	Yes
6:56	Westbound	150	17	5	Yes
7:08	Westbound	60	1	11	Yes
7:27	Westbound	150	14	16	Yes
7:46	Westbound	50	2	1	Yes
8:07	Westbound	50	6	4	Yes
8:20	Eastbound	130	10	11	Yes
3:37 (PM)	Westbound	130	22	25	Yes
3:50	Westbound	45	7	9	Yes
4:04	Eastbound	150	24	26	Yes
4:29	Westbound	45	9	7	Yes
4:49	Westbound	70	14	20	Yes
4:56	Eastbound	130	20	24	Yes
5:33	Eastbound/Westbound	195	30	19	Yes
5:48	Eastbound	135	25	27	Yes
6:08	Eastbound	135	25	17	Yes
6:36	Westbound	60	21	14	Yes
6:41	Eastbound	150	21	11	Yes
7:09	Eastbound	140	17	19	Yes
7:21	Eastbound	125	17	9	Yes
7:45	Westbound	60	14	6	Yes
7:54	Eastbound	175	18	17	Yes

As can be seen in Table 6 above, the maximum observed northbound and southbound queues during the AM peak hours is 17 and 16 vehicles respectively. During the PM peak hour, the maximum observed

northbound and southbound queue is 30 and 27 vehicles respectively. These queues were sometimes observed to block side streets. However, the queues always cleared upon the opening of the railroad gate. Traffic on Railroad Avenue was observed to flow smoothly with some delays when the railroad gate is open.

As requested, the Sim Traffic analyses of the railroad crossing simulation has been compared with the observed queues at the railroad crossing during the weekday AM and PM peak hours. Table 7 summarizes the maximum northbound and southbound queues at the railroad crossing obtained from the Sim Traffic simulation.

TABLE 7:SIM TRAFFIC SIMULATION RAILROAD GATE DATA RAILROAD AVENUE

Peak Period	Maximum Queue (feet)		Maximum Queue (vehicles)	
	Northbound	Southbound	Northbound	Southbound
AM	256	409	14	23
PM	250	669	14	37

Note – assumed 1 vehicle length is approximately 18 feet

As can be seen from the review of tables 6 and 7, the queues observed on Railroad Avenue in the vicinity of the railroad crossing during AM and PM peak hours are similar to those in the Sim Traffic Simulation, hence the modelling results reasonably reflect prevailing conditions.

LKMA October 2020 Comment – LKMA concurs with the statement in the response that the model has been determined to reflect queues at the railroad crossing, and therefore can provide a reasonable prediction of future queuing at the grade crossing after addition of the site generated traffic. The predicted queue lengths were not provided in the response memorandum or in the report or appendices. The projected queue lengths should be provided so that the impact of the additional traffic on queues can be estimated within the constraints of the model.

LKMA February 2020 Comment 15 - LIRR Parking *– The response provides a reasonable estimate of the project's impact on available parking at the Sayville LIRR station. No discussion of the demand due to the as of right development is provided., which is likely to be approximately 90% less than the projected demand under the proposed zoning.*

Based on the information provided in the report, demand for approximately 56 additional parking spaces can be expected at the Sayville station parking lots were the property developed as described in the submission.

The report notes that the station parking lot north of the LIRR is essentially at capacity under existing conditions, and the south lot is near capacity. The condition will be exacerbated by the increased demand.

The report states that private transit will be offered to offset the parking demand at the LIRR station, which contradicts other information in this submission. No other mitigation is offered.

The revised report continues to maintain that LIRR station parking will serve to meet parking demand for the downtown Sayville business area during weekend, when LIRR station demand is lower. Given the distance between the LIRR lots and the downtown area, this is considered unrealistic.

Applicant June 2020 Response -As stated in the previous responses, parking counts were collected at the LIRR station parking lots on Wednesday June 6th, 2018 from 7am to 8pm. Based on the review of the parking data, the peak parking demand of the LIRR parking lots occurred at 2pm with 497 of the 603 parking spaces occupied resulting in a minimum availability of 106 parking spaces at any given time of the day. Based on the parking study, the proposed residential development will generate a parking demand of 56 parking spaces at the Sayville LIRR station. The available 106 parking spaces will be adequate to support this parking demand. However, to mitigate any parking impact in the LIRR parking lots associated with the proposed project, the applicant is strongly reconsidering the provision of private shuttle bus (private transit) services to transport residents to and from the train station during the AM and PM commuter peak hours. The applicant will be working on the details of this service as the project moves along. Even though the available parking is adequate to support the peak parking demand of proposed project, the private transit service will further reduce the parking demand.

LKMA October 2020 Comment - Response noted. Given the greater than ten-fold increase in the number of residential units proposed as compared to the as of right development, the proposed development will result in increased demand for parking in the LIRR parking lots.

LKMA February 2020 Comment 16- Municipal Parking *- Development of the site under the proposed zoning will result in proportionally greater parking demand in the Downtown Sayville business district than would development as of right. While adequate parking exists, no mitigation is offered for the increased impact. If the applicant does not agree that the linear extrapolation is realistic, alternative methodology should be proposed and implemented to determine the project's potential impact on parking demand in the downtown business district. Such methodology could include surveys to determine the origins of patrons and visitors utilizing the municipal parking, so that the impact of the increase in the local population by 15% could be more accurately estimated, and mitigation of the project's impact on available municipal parking due to the proposed rezoning could be discussed.*

Applicant June 2020 Response - Surveys to determine the origins of patrons and visitors utilizing the municipal parking is likely not feasible at this time but even if this linear extrapolation is considered, a 15% increase in the current 554 municipal parking spaces will result in an increase in demand of 83 parking spaces. Parking counts were collected at the municipal parking lots in Sayville on Wednesday June 6th, 2018 from 7am to 8pm. Based on the review of the parking data, the peak parking demand of the municipal parking lots occurred at 6 pm with 334 of the 554 parking spaces occupied resulting in a minimum availability of 220 parking spaces at any given time of the day. With the linear extrapolation approach, the available municipal parking spaces (220) is significantly higher than the estimated parking demand of 83 spaces. It is therefore our opinion that there will be adequate municipal parking in the downtown to support the estimated parking demand.

LKMA October 2020 Comment - Response noted. Given the greater than ten-fold increase in the number of residential units proposed as compared to the as of right development, the proposed development will result in increased demand for parking in the municipal parking lots.

LKMA February 2020 Comment 17 *- The response is inadequate and further information is required. Currently prevailing congestion issues during school arrival and dismissal times identified in the study report will continue and be slightly exacerbated. Pick up and drop off queues at each school facility will lengthen somewhat, as will the time it takes for queues to dissipate. The impact will be commensurate with the proposal increase in traffic over as of right development.*

Development under the proposed zoning can be expected to result in approximately 90% more school aged children than under as of right zoning, with proportional increase in transportation impacts, including school buses and private vehicles. The modal split of students travelling to and from the school facilities should be utilized to determine the number of additional school-based trips that will be generated by development. The impact of these additional trips on queueing and congestion at the school facilities should be estimated by distributing the new trips among the school facilities.

Also, school buses typically do not access private roads as proposed by the development. Where are the School Bus Stops on Lakeland likely to be?

Applicant June 2020 Response - As detailed in our previous response, from our field observations at the three schools (Edward J. Bosti elementary School, Oakdale-Bohemia Middle School and Connetquot High School), Overall, all the school access points and drop-off/pick-up areas experienced some delays and traffic congestion during the drop-off and pick-up periods that lasted between 15 and 30 minutes. Outside these time periods no traffic congestion and traffic flow issues were observed. These types of conditions are common at many schools in Long Island.

To determine the level of impact the proposed development will have, if any, on school related transportation, an estimate of the number of potential number of school children that will reside at the development was determined. The proposed residential development contains a total of 1365 residential units. Based on the fiscal and economic analyses conducted for this project, a total of 210 school aged children will reside in this residential development. The as-of- right development of 98 single family homes will generate a total of 144 school aged children, 66 less than the proposed development. The 210 students will be distributed between the elementary, middle and high school. Based on the number of grades from K through 12, of the 210 school aged children, we estimated 97 elementary school children, 48 middle school children and 65 high school students. Based on this estimate, the elementary school children will generate between 2 and 3 school buses, the middle school children will generate between 1 and 2 buses and the high school students will generate between 1 and 2 buses.

Based on our field observations as noted above, the addition of few more school buses will not significantly impact traffic flow and congestion on the surrounding roadways and should not require any changes to the current bus routes. Data obtained from the Pre-K Through 12th Grade Nassau/Suffolk County School Enrollment for 2014 through 2019 show that the student enrollment at the Connetquot Central School District consistently declined over the five (5) school year periods. The Connetquot Central School District lost a total of 502 students over the 5-year period. Based on this trend and the current bus utilization, the additional students could be accommodated in the current bus fleet and hence may not require any changes to the current fleet. Additionally, any increases in the number of vehicles dropping off and picking up students, driving to and parking at the school facilities was included

in the trip generation and distribution of traffic for the proposed project and hence will be reflected in the capacity analyses results of the study intersections. Any traffic flows and congestion issues at the school facilities are existing and only occur for a short period of time during the morning drop-off periods and the afternoon pick-up periods. The project traffic traveling to and from these school facilities should not significantly impact the current operation of the school facilities.

However, to improve the current traffic condition during the short period of time they occur, the following can be considered:

- Have more than one arrival and departure time per school (stagger the arrival and departure times by 30 minutes). This can be done by grades. For example, have Grade 3 thru 5 students arrive half an hour before Pre-K thru 2. This will help distribute traffic and relieve traffic congestion.
- Install signs along the drop off /pick up areas to encourage parents not to double park during drop off and pickups. This will improve traffic circulation and hence reduce traffic congestion.

With regards, to school bus stops on Lakeland Avenue, the applicant can provide a dedication along the site frontages on Lakeland Avenue and 11th Street for school bus stops.

LKMA October 2020 Comment – Response noted. Given the greater than ten-fold increase in the number of residential units proposed as compared to the as of right development, the projected increase in school age children seems low. While verification of these projections is beyond the purview LKMA's efforts, a stated, the proposed development will result in increased school related traffic as compared to the as of right (no build) projection.

ATTACHMENTS

Traffic Impact Study Review
Proposed GRaybarn Sayville
Study Area Intersection Site Generated Traffic

AM PEAK - SCHOOL PEAK					
Int ID	Intersection	No Build Traffic	Build (Phase 6)	Difference	% increase
1	Smithtown Ave. & NYS Route 27 North Service Rd	1407	1456	49	3.5%
2	Smithtown Ave. & NYS Route 27 South Service Rd	477	545	68	14.3%
3	Lakeland Ave. & NYS Route 27 North Service Rd.	3909	4180	271	6.9%
4	Lakeland Ave. & NYS Route 27 South Service Rd.	2622	2979	357	13.6%
5	Johnson Ave. & NYS Route 27 North Service Rd.	2610	2610	0	0.0%
6	Johnson Ave. & NYS Route 27 South Service Rd.	1098	1098	0	0.0%
7	Lakeland Ave. & 11th St.	1244	1521	277	22.3%
8	Lakeland Ave. & Gibbons Ct.	1238	1508	270	21.8%
9	Lakeland Ave. & Chester Rd.	1159	1190	31	2.7%
10	Lakeland Ave. & Tariff Street/Johnson Ave.	1353	1410	57	4.2%
11	Lakeland Ave. & Manton St.	970	1021	51	5.3%
12	Lakeland Ave. & LIRR North Parking Lot / Henry St.	835	886	51	6.1%
13	Railroad Ave. & Depot St.	850	906	56	6.6%
14	Railroad Ave. & Hiddink St.	764	793	29	3.8%
15	Railroad Ave. & Center St.	536	555	19	3.5%
16	Montauk Hwy. & Brook St.	1291	1320	29	2.2%
17	Montauk Hwy. & Cherry Ave.	1267	1289	22	1.7%
18	Shopping Center/Greeley Ave. & Montauk Hwy.	1322	1339	17	1.3%
19	Greene Ave. & Montauk Hwy.	1355	1372	17	1.3%
20	Gilette Ave. / Railroad Ave. & Montauk Hwy.	1452	1512	60	4.1%
21	Shopping Center/Lincoln Ave. & Montauk Hwy.	1063	1068	5	0.5%
22	Foster Ave./Shopping Center & Montauk Hwy.	1177	1182	5	0.4%
23	Montauk Hwy. & Hiddink St./Hanson Pl.	1174	1184	10	0.9%
24	Smithtown Ave. & Terry Road & Island Blvd.	249	313	64	25.7%
26	Bohemia Pkwy. & Terry Rd.	325	423	98	30.2%
27	St. Johns St. & Terry Rd.	297	335	38	12.8%
28	Terry Rd. & Sterling Pl.	278	316	38	13.7%
29	Terry Rd. & Carrier Ave.	233	277	44	18.9%
30	Cherry Ave. & Tariff St/Terry Rd.	542	587	45	8.3%
31	Tariff St./Terry Rd. & Chester Rd.	443	475	32	7.2%
32	Bohemia Pkwy. & NYS Route 27 South Service Rd.	192	275	83	43.2%
33	Bohemia Pkwy. & 11th St.	48	131	83	172.9%
34	Carrier Ave. & Marion St.	181	34	-147	-81.2%
35	Carries Ave. & Sterling Pl.	44	39	-5	-11.4%
36	Cherry Ave. & Brook St.	684	704	20	2.9%
37	Lincoln Ave. & Hiddink St.	451	461	10	2.2%
38	Site Access & 11th St.	N/A	111	N/A	N/A
39	Terry Rd. & Site Access	N/A	433	N/A	N/A

Traffic Impact Study Review
Proposed GRaybarn Sayville
Study Area Intersection Site Generated Traffic

PM PEAK - SCHOOL PEAK					
Int ID	Intersection	No Build Traffic	Build (Phase 6)	Difference	% increase
1	Smithtown Ave. & NYS Route 27 North Service Rd	1706	1737	31	1.8%
2	Smithtown Ave. & NYS Route 27 South Service Rd	863	951	88	10.2%
3	Lakeland Ave. & NYS Route 27 North Service Rd.	4353	4684	331	7.6%
4	Lakeland Ave. & NYS Route 27 South Service Rd.	2906	3334	428	14.7%
5	Johnson Ave. & NYS Route 27 North Service Rd.	2708	2708	0	0.0%
6	Johnson Ave. & NYS Route 27 South Service Rd.	1469	1469	0	0.0%
7	Lakeland Ave. & 11th St.	1629	2008	379	23.3%
8	Lakeland Ave. & Gibbons Ct.	1631	1935	304	18.6%
9	Lakeland Ave. & Chester Rd.	1529	1567	38	2.5%
10	Lakeland Ave. & Tariff Street/Johnson Ave.	1951	2017	66	3.4%
11	Lakeland Ave. & Manton St.	1495	1557	62	4.1%
12	Lakeland Ave. & LIRR North Parking Lot / Henry St.	1350	1412	62	4.6%
13	Railroad Ave. & Depot St.	1532	1589	57	3.7%
14	Railroad Ave. & Hiddink St.	1444	1479	35	2.4%
15	Railroad Ave. & Center St.	1192	1214	22	1.8%
16	Montauk Hwy. & Brook St.	1872	1907	35	1.9%
17	Montauk Hwy. & Cherry Ave.	1854	1879	25	1.3%
18	Shopping Center/Greeley Ave. & Montauk Hwy.	1790	1809	19	1.1%
19	Greene Ave. & Montauk Hwy.	1839	1858	19	1.0%
20	Gilette Ave. / Railroad Ave. & Montauk Hwy.	2236	2261	25	1.1%
21	Shopping Center/Lincoln Ave. & Montauk Hwy.	1516	1522	6	0.4%
22	Foster Ave./Shopping Center & Montauk Hwy.	1692	1698	6	0.4%
23	Montauk Hwy. & Hiddink St./Hanson Pl.	1720	1732	12	0.7%
24	Smithtown Ave. & Terry Road & Island Blvd.	416	492	76	18.3%
26	Bohemia Pkwy. & Terry Rd.	448	546	98	21.9%
27	St. Johns St. & Terry Rd.	406	452	46	11.3%
28	Terry Rd. & Sterling Pl.	388	434	46	11.9%
29	Terry Rd. & Carrier Ave.	727	384	-343	-47.2%
30	Cherry Ave. & Tariff St/Terry Rd.	1144	809	-335	-29.3%
31	Tariff St./Terry Rd. & Chester Rd.	579	617	38	6.6%
32	Bohemia Pkwy. & NYS Route 27 South Service Rd.	456	520	64	14.0%
33	Bohemia Pkwy. & 11th St.	85	149	64	75.3%
34	Carrier Ave. & Marion St.	41	41	0	0.0%
35	Carries Ave. & Sterling Pl.	47	47	0	0.0%
36	Cherry Ave. & Brook St.	870	895	25	2.9%
37	Lincoln Ave. & Hiddink St.	783	795	12	1.5%
38	Site Access & 11th St.	N/A	209	N/A	N/A
39	Terry Rd. & Site Access	N/A	545	N/A	N/A

Traffic Impact Study Review
Proposed GRaybarn Sayville
Study Area Intersection Site Generated Traffic

SAT PEAK - SCHOOL PEAK					
Int ID	Intersection	No Build Traffic	Build (Phase 6)	Difference	% increase
1	Smithtown Ave. & NYS Route 27 North Service Rd	746	780	34	4.6%
2	Smithtown Ave. & NYS Route 27 South Service Rd	750	822	72	9.6%
3	Lakeland Ave. & NYS Route 27 North Service Rd.	3038	3317	279	9.2%
4	Lakeland Ave. & NYS Route 27 South Service Rd.	2634	3014	380	14.4%
5	Johnson Ave. & NYS Route 27 North Service Rd.	1636	1636	0	0.0%
6	Johnson Ave. & NYS Route 27 South Service Rd.	1244	1244	0	0.0%
7	Lakeland Ave. & 11th St.	1576	1891	315	20.0%
8	Lakeland Ave. & Gibbons Ct.	1592	1896	304	19.1%
9	Lakeland Ave. & Chester Rd.	1495	1563	68	4.5%
10	Lakeland Ave. & Tariff Street/Johnson Ave.	1785	1904	119	6.7%
11	Lakeland Ave. & Manton St.	1397	1500	103	7.4%
12	Lakeland Ave. & LIRR North Parking Lot / Henry St.	1294	1397	103	8.0%
13	Railroad Ave. & Depot St.	1441	1544	103	7.1%
14	Railroad Ave. & Hiddink St.	1373	1464	91	6.6%
15	Railroad Ave. & Center St.	1144	1205	61	5.3%
16	Montauk Hwy. & Brook St.	1390	1481	91	6.5%
17	Montauk Hwy. & Cherry Ave.	1515	1575	60	4.0%
18	Shopping Center/Greeley Ave. & Montauk Hwy.	1595	1643	48	3.0%
19	Greene Ave. & Montauk Hwy.	1689	1737	48	2.8%
20	Gilette Ave. / Railroad Ave. & Montauk Hwy.	2027	2087	60	3.0%
21	Shopping Center/Lincoln Ave. & Montauk Hwy.	1462	1474	12	0.8%
22	Foster Ave./Shopping Center & Montauk Hwy.	1659	1671	12	0.7%
23	Montauk Hwy. & Hiddink St./Hanson Pl.	1590	1619	29	1.8%
24	Smithtown Ave. & Terry Road & Island Blvd.	343	407	64	18.7%
26	Bohemia Pkwy. & Terry Rd.	431	521	90	20.9%
27	St. Johns St. & Terry Rd.	391	476	85	21.7%
28	Terry Rd. & Sterling Pl.	379	464	85	22.4%
29	Terry Rd. & Carrier Ave.	337	422	85	25.2%
30	Cherry Ave. & Tariff St/Terry Rd.	685	785	100	14.6%
31	Tariff St./Terry Rd. & Chester Rd.	487	555	68	14.0%
32	Bohemia Pkwy. & NYS Route 27 South Service Rd.	388	460	72	18.6%
33	Bohemia Pkwy. & 11th St.	79	151	72	91.1%
34	Carrier Ave. & Marion St.	37	37	0	0.0%
35	Carries Ave. & Sterling Pl.	47	47	0	0.0%
36	Cherry Ave. & Brook St.	678	725	47	6.9%
37	Lincoln Ave. & Hiddink St.	718	747	29	4.0%
38	Site Access & 11th St.	N/A	163	N/A	N/A
39	Terry Rd. & Site Access	N/A	581	N/A	N/A

Traffic Impact Study Review
Proposed GRaybarn Sayville
Study Area Intersection Site Generated Traffic

AM PEAK - SUMMER PEAK					
Int ID	Intersection	No Build Traffic	Build (Phase 6)	Difference	% increase
1	Smithtown Ave. & NYS Route 27 North Service Rd	524	573	49	9.4%
2	Smithtown Ave. & NYS Route 27 South Service Rd	498	566	68	13.7%
3	Lakeland Ave. & NYS Route 27 North Service Rd.	3188	3459	271	8.5%
4	Lakeland Ave. & NYS Route 27 South Service Rd.	2730	3087	357	13.1%
5	Johnson Ave. & NYS Route 27 North Service Rd.	1710	1710	0	0.0%
6	Johnson Ave. & NYS Route 27 South Service Rd.	1074	1074	0	0.0%
7	Lakeland Ave. & 11th St.	1322	1599	277	21.0%
8	Lakeland Ave. & Gibbons Ct.	1314	1584	270	20.5%
9	Lakeland Ave. & Chester Rd.	1239	1270	31	2.5%
10	Lakeland Ave. & Tariff Street/Johnson Ave.	1455	1512	57	3.9%
11	Lakeland Ave. & Manton St.	1036	1087	51	4.9%
12	Lakeland Ave. & LIRR North Parking Lot / Henry St.	958	1009	51	5.3%
13	Railroad Ave. & Depot St.	1012	1061	49	4.8%
14	Railroad Ave. & Hiddink St.	930	959	29	3.1%
15	Railroad Ave. & Center St.	820	839	19	2.3%
16	Montauk Hwy. & Brook St.	1093	1122	29	2.7%
17	Montauk Hwy. & Cherry Ave.	1099	1121	22	2.0%
18	Shopping Center/Greeley Ave. & Montauk Hwy.	1142	1159	17	1.5%
19	Greene Ave. & Montauk Hwy.	1217	1234	17	1.4%
20	Gilette Ave. / Railroad Ave. & Montauk Hwy.	1480	1502	22	1.5%
21	Shopping Center/Lincoln Ave. & Montauk Hwy.	1054	1059	5	0.5%
22	Foster Ave./Shopping Center & Montauk Hwy.	1187	1192	5	0.4%
23	Montauk Hwy. & Hiddink St./Hanson Pl.	1169	1179	10	0.9%
24	Smithtown Ave. & Terry Road & Island Blvd.	227	293	66	29.1%
26	Bohemia Pkwy. & Terry Rd.	297	395	98	33.0%
27	St. Johns St. & Terry Rd.	263	301	38	14.4%
28	Terry Rd. & Sterling Pl.	251	289	38	15.1%
29	Terry Rd. & Carrier Ave.	216	254	38	17.6%
30	Cherry Ave. & Tariff St/Terry Rd.	407	452	45	11.1%
31	Tariff St./Terry Rd. & Chester Rd.	320	352	32	10.0%
32	Bohemia Pkwy. & NYS Route 27 South Service Rd.	266	349	83	31.2%
33	Bohemia Pkwy. & 11th St.	60	143	83	138.3%
34	Carrier Ave. & Marion St.	28	28	0	0.0%
35	Carries Ave. & Sterling Pl.	32	32	0	0.0%
36	Cherry Ave. & Brook St.	479	499	20	4.2%
37	Lincoln Ave. & Hiddink St.	427	437	10	2.3%
38	Site Access & 11th St.	N/A	115	N/A	N/A
39	Terry Rd. & Site Access	N/A	411	N/A	N/A

Traffic Impact Study Review
Proposed GRaybarn Sayville
Study Area Intersection Site Generated Traffic

PM PEAK - SUMMER PEAK					
Int ID	Intersection	No Build Traffic	Build (Phase 6)	Difference	% increase
1	Smithtown Ave. & NYS Route 27 North Service Rd	1294	1325	31	2.4%
2	Smithtown Ave. & NYS Route 27 South Service Rd	806	894	88	10.9%
3	Lakeland Ave. & NYS Route 27 North Service Rd.	3908	4239	331	8.5%
4	Lakeland Ave. & NYS Route 27 South Service Rd.	2967	3395	428	14.4%
5	Johnson Ave. & NYS Route 27 North Service Rd.	1995	1995	0	0.0%
6	Johnson Ave. & NYS Route 27 South Service Rd.	1342	1342	0	0.0%
7	Lakeland Ave. & 11th St.	1604	1983	379	23.6%
8	Lakeland Ave. & Gibbons Ct.	1622	1926	304	18.7%
9	Lakeland Ave. & Chester Rd.	1515	1553	38	2.5%
10	Lakeland Ave. & Tariff Street/Johnson Ave.	1712	919	-793	-46.3%
11	Lakeland Ave. & Manton St.	1331	1373	42	3.2%
12	Lakeland Ave. & LIRR North Parking Lot / Henry St.	1211	1273	62	5.1%
13	Railroad Ave. & Depot St.	1359	1416	57	4.2%
14	Railroad Ave. & Hiddink St.	1294	1329	35	2.7%
15	Railroad Ave. & Center St.	1101	1123	22	2.0%
16	Montauk Hwy. & Brook St.	1818	1853	35	1.9%
17	Montauk Hwy. & Cherry Ave.	1774	1799	25	1.4%
18	Shopping Center/Greeley Ave. & Montauk Hwy.	1718	1737	19	1.1%
19	Greene Ave. & Montauk Hwy.	1774	1793	19	1.1%
20	Gilette Ave. / Railroad Ave. & Montauk Hwy.	2117	2145	28	1.3%
21	Shopping Center/Lincoln Ave. & Montauk Hwy.	1566	1539	-27	-1.7%
22	Foster Ave./Shopping Center & Montauk Hwy.	1632	1638	6	0.4%
23	Montauk Hwy. & Hiddink St./Hanson Pl.	1640	1652	12	0.7%
24	Smithtown Ave. & Terry Road & Island Blvd.	320	396	76	23.8%
26	Bohemia Pkwy. & Terry Rd.	382	480	98	25.7%
27	St. Johns St. & Terry Rd.	325	671	346	106.5%
28	Terry Rd. & Sterling Pl.	316	362	46	14.6%
29	Terry Rd. & Carrier Ave.	300	346	46	15.3%
30	Cherry Ave. & Tariff St/Terry Rd.	623	676	53	8.5%
31	Tariff St./Terry Rd. & Chester Rd.	470	508	38	8.1%
32	Bohemia Pkwy. & NYS Route 27 South Service Rd.	459	523	64	13.9%
33	Bohemia Pkwy. & 11th St.	77	141	64	83.1%
34	Carrier Ave. & Marion St.	24	24	0	0.0%
35	Carries Ave. & Sterling Pl.	23	23	0	0.0%
36	Cherry Ave. & Brook St.	703	728	25	3.6%
37	Lincoln Ave. & Hiddink St.	680	692	12	1.8%
38	Site Access & 11th St.	N/A	491	N/A	N/A
39	Terry Rd. & Site Access	N/A	196	N/A	N/A

Traffic Impact Study Review
Proposed GRaybarn Sayville
Study Area Intersection Site Generated Traffic

FRIDAY PEAK - SUMMER PEAK					
Int ID	Intersection	No Build Traffic	Build (Phase 6)	Difference	% increase
1	Smithtown Ave. & NYS Route 27 North Service Rd	1466	1497	31	2.1%
2	Smithtown Ave. & NYS Route 27 South Service Rd	809	897	88	10.9%
3	Lakeland Ave. & NYS Route 27 North Service Rd.	4023	4354	331	8.2%
4	Lakeland Ave. & NYS Route 27 South Service Rd.	2993	3421	428	14.3%
5	Johnson Ave. & NYS Route 27 North Service Rd.	1873	1873	0	0.0%
6	Johnson Ave. & NYS Route 27 South Service Rd.	1315	1315	0	0.0%
7	Lakeland Ave. & 11th St.	1583	1962	379	23.9%
8	Lakeland Ave. & Gibbons Ct.	1594	1934	340	21.3%
9	Lakeland Ave. & Chester Rd.	1499	1537	38	2.5%
10	Lakeland Ave. & Tariff Street/Johnson Ave.	1763	1832	69	3.9%
11	Lakeland Ave. & Manton St.	1393	1455	62	4.5%
12	Lakeland Ave. & LIRR North Parking Lot / Henry St.	1236	1298	62	5.0%
13	Railroad Ave. & Depot St.	1383	1440	57	4.1%
14	Railroad Ave. & Hiddink St.	1332	1367	35	2.6%
15	Railroad Ave. & Center St.	1118	1140	22	2.0%
16	Montauk Hwy. & Brook St.	1786	1821	35	2.0%
17	Montauk Hwy. & Cherry Ave.	1747	1772	25	1.4%
18	Shopping Center/Greeley Ave. & Montauk Hwy.	1764	1783	19	1.1%
19	Greene Ave. & Montauk Hwy.	1777	1796	19	1.1%
20	Gilette Ave. / Railroad Ave. & Montauk Hwy.	2177	2202	25	1.1%
21	Shopping Center/Lincoln Ave. & Montauk Hwy.	1582	1588	6	0.4%
22	Foster Ave./Shopping Center & Montauk Hwy.	1776	1782	6	0.3%
23	Montauk Hwy. & Hiddink St./Hanson Pl.	1759	1771	12	0.7%
24	Smithtown Ave. & Terry Road & Island Blvd.	319	395	76	23.8%
26	Bohemia Pkwy. & Terry Rd.	339	437	98	28.9%
27	St. Johns St. & Terry Rd.	294	340	46	15.6%
28	Terry Rd. & Sterling Pl.	285	331	46	16.1%
29	Terry Rd. & Carrier Ave.	259	305	46	17.8%
30	Cherry Ave. & Tariff St/Terry Rd.	527	580	53	10.1%
31	Tariff St./Terry Rd. & Chester Rd.	409	447	38	9.3%
32	Bohemia Pkwy. & NYS Route 27 South Service Rd.	445	509	64	14.4%
33	Bohemia Pkwy. & 11th St.	74	138	64	86.5%
34	Carrier Ave. & Marion St.	30	30	0	0.0%
35	Carries Ave. & Sterling Pl.	31	34	3	9.7%
36	Cherry Ave. & Brook St.	703	728	25	3.6%
37	Lincoln Ave. & Hiddink St.	725	737	12	1.7%
38	Site Access & 11th St.	N/A	203	N/A	N/A
39	Terry Rd. & Site Access	N/A	449	N/A	N/A

Traffic Impact Study Review
Proposed GRaybarn Sayville
Study Area Intersection Site Generated Traffic

SATURDAY PEAK - SUMMER PEAK					
Int ID	Intersection	No Build Traffic	Build (Phase 6)	Difference	% increase
1	Smithtown Ave. & NYS Route 27 North Service Rd	662	696	34	5.1%
2	Smithtown Ave. & NYS Route 27 South Service Rd	623	695	72	11.6%
3	Lakeland Ave. & NYS Route 27 North Service Rd.	3072	3351	279	9.1%
4	Lakeland Ave. & NYS Route 27 South Service Rd.	2673	3053	380	14.2%
5	Johnson Ave. & NYS Route 27 North Service Rd.	1498	1498	0	0.0%
6	Johnson Ave. & NYS Route 27 South Service Rd.	946	973	27	2.9%
7	Lakeland Ave. & 11th St.	1548	1863	315	20.3%
8	Lakeland Ave. & Gibbons Ct.	1566	1870	304	19.4%
9	Lakeland Ave. & Chester Rd.	1467	1535	68	4.6%
10	Lakeland Ave. & Tariff Street/Johnson Ave.	1726	1845	119	6.9%
11	Lakeland Ave. & Manton St.	1420	1523	103	7.3%
12	Lakeland Ave. & LIRR North Parking Lot / Henry St.	1348	1451	103	7.6%
13	Railroad Ave. & Depot St.	1463	1566	103	7.0%
14	Railroad Ave. & Hiddink St.	1392	1483	91	6.5%
15	Railroad Ave. & Center St.	1169	1230	61	5.2%
16	Montauk Hwy. & Brook St.	1383	1474	91	6.6%
17	Montauk Hwy. & Cherry Ave.	1508	1568	60	4.0%
18	Shopping Center/Greeley Ave. & Montauk Hwy.	1581	1629	48	3.0%
19	Greene Ave. & Montauk Hwy.	1683	1731	48	2.9%
20	Gilette Ave. / Railroad Ave. & Montauk Hwy.	2061	2121	60	2.9%
21	Shopping Center/Lincoln Ave. & Montauk Hwy.	1487	1499	12	0.8%
22	Foster Ave./Shopping Center & Montauk Hwy.	1693	1705	12	0.7%
23	Montauk Hwy. & Hiddink St./Hanson Pl.	1573	1602	29	1.8%
24	Smithtown Ave. & Terry Road & Island Blvd.	254	318	64	25.2%
26	Bohemia Pkwy. & Terry Rd.	327	417	90	27.5%
27	St. Johns St. & Terry Rd.	274	359	85	31.0%
28	Terry Rd. & Sterling Pl.	264	349	85	32.2%
29	Terry Rd. & Carrier Ave.	235	320	85	36.2%
30	Cherry Ave. & Tariff St/Terry Rd.	479	579	100	20.9%
31	Tariff St./Terry Rd. & Chester Rd.	365	433	68	18.6%
32	Bohemia Pkwy. & NYS Route 27 South Service Rd.	383	455	72	18.8%
33	Bohemia Pkwy. & 11th St.	87	159	72	82.8%
34	Carrier Ave. & Marion St.	24	24	0	0.0%
35	Carries Ave. & Sterling Pl.	29	29	0	0.0%
36	Cherry Ave. & Brook St.	619	666	47	7.6%
37	Lincoln Ave. & Hiddink St.	652	681	29	4.4%
38	Site Access & 11th St.	N/A	160	N/A	N/A
39	Terry Rd. & Site Access	N/A	471	N/A	N/A

Appendix F-4
LKMA Response Memo to Town

December 7, 2020

LKMA

L. K. McLean Associates, P.C.

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MEMORANDUM

TO: Ron Meyer, Commissioner
Town of Islip Department of Planning and Development
655 Main Street
Islip, New York 11751

FROM: Vincent A. Corrado, PE Associate
Louis K. McLean Associates, PC

CC: Jessica Joyce, Senior Environmental Analyst, TOI
Sean Colgan, Principal Planner, TOI

Raymond G. DiBiase, PE, PTOE, PTP

DATE: December 7, 2020

RE: Greybarn-Sayville Planned Development District (Island Hills PDD)
W/S Lakeland Avenue, E/S Bohemia Parkway, E/S Hauppauge Road
Sayville, New York
LKMA 18027.002

This memorandum presents our response to your inquiries regarding the above proposed project. As requested, we have compiled a summary of the information provided, based on the questions listed in your email of November 9, 2020. The following sections proved the results of our efforts in this regard.

1. **What does the Institute of Traffic Engineer's trip generation manual state is the total daily trips generated for the as of right single family development versus each of the applicant's DEIS development alternatives?**

As discussed in the study report, 98 single-family homes could be developed on the 114-acre parcel under the current zoning. Based on the results of the trip generation analyses conducted for the study,

development under current zoning is estimated to potentially generate 1,240 Vehicle Trip Ends (VTE) per day, while development of the site as proposed under the PDD zoning could be expected to generate approximately 6,400 new VTE per day. Thus, the proposed rezoning and development of the site under the requested PDD zoning represents approximately 400% more new trips added to the adjacent roadways than as of right development. The trip generation analyses were based on information from the Institute of Transportation Engineers (ITE) report "Trip Generation" for Land Use Code Land Use Code 221- Multifamily Housing (Mid-Rise).

During the weekday AM peak hour, 98 single family homes would generate 74 total vehicle trips, 18 entering and 56 exiting the property, while development under the PDD zoning would generate 492 trips, 127 entering and 365 exiting. During the weekday PM peak hour, as of right development would generate 99 total trips (62 entering and 37 exiting trips) while the proposed PDD would generate 601 trips, 365 entering and 236 exiting. Finally, during the Saturday midday peak hour, as of right development of the site would generate 100 total trips, 54 entering and 46 exiting, while under the proposed PDD zoning, 601 trips would be added to the roadway network, 294 entering trips and 307 exiting trips.

Development is proposed in six (6) phases. Table 1 below shows the proposed build year and the number of new trips estimated to be generated by each phase. The estimates are based on information in the Institute of Transportation Engineers (ITE) report "Trip Generation" 10th Edition.

Phase	Number of Units	Build Year	Total New Vehicle Trips		
			Weekday AM	Weekday PM	Saturday
Phase 1	138	2021	50	61	61
Phase 2	222	2022	80	98	98
Phase 3	318	2023	114	140	140
Phase 4	289	2024	104	127	127
Phase 5	213	2025	77	94	94
Phase 6	185	2026	67	81	81
Total	**1365**	**-**	**492**	**601**	**601**

Table 1 Trip Generation by Phase for Proposed Development

In addition to the No Build alternative, six (6) build alternatives were examined in the report. The alternatives are described as follows:

- ***Alternative 1 (*No Action):** No change to site condition
- ***Alternative 2 (As of Right):*** 98 single family homes
- ***Alternative 3 (Reduced Multi-Family Residential):*** 1000 MF rental units, 39 SF residences
- ***Alternative 4 (Residence AA):*** 181 attached/detached SF clustered subdivision
- ***Alternative 5 (Life Cycle Community):*** 800 MF units, 59 Senior units, 400 Congregate Care units, 150 Assisted Living units and 120 Bed Nursing Home.
- ***Alternative 6:*** Not identified
- ***Alternative 7 (Multi-Family Residential):*** 1,365 multi-family residential units.
- ***Alternative 8 (Industrial Park):*** *1*,000,000 SF of Industrial Park

Table 2 provides the trip generation estimates for each alternative discussed in the report. Note that for it appears that there is an error in the numbering of the alternatives, in that Alternative 6 was not identified.

Alternative	Land Use	Size	Total New Vehicle Trips		
			Weekday AM	Weekday PM	Saturday
Alternative 2	SF Residential	98 Units	74	100	100
Alternative 3	Mixed MF Residential	1000 Rental, 39 SF	492	601	591
Alternative 4	AA Residential	181 Attached and Detached	103	129	134
Alternative 5	Life Cycle Community	800 MF Units 59 Senior Units 400 Cong Care 150 Ass. Living 120 Bed NH	472	617	567
Alternative 7	MF Residential	1365 Units	492	601	601
Alternative 8	Industrial Park	1,000,000 SF	400	440	440

Table 2 Trip Generation Estimates for Development Alternatives

As can be seen, each alternative examined would generate the same or fewer trips than the proposed PDD.

2. **Does the DEIS traffic study identify which roadway(s) and intersection(s) in the adopted scope of work, are adversely impacted (a reduction in the A-F capacity rating) by each development alternative?**

The sections below discuss the impact of site generated traffic on the signalized intersections examined in the study for each phase of the project. Note that in cases where minor deterioration in delays were identified that did not affect overall intersection Levels of Service, the study applied minor adjustments to signal timing. If LOS was noted to deteriorate, additional mitigation was discussed. The study also notes that side street approaches to Lakeland Avenue at unsignalized intersections experience significant delays, which increase as a result of the addition of site generated traffic. No mitigation is suggested at any of the unsignalized intersection locations. Lakeland Avenue experiences periods of uninterrupted traffic flow which results in difficulty for vehicles entering or crossing Lakeland Avenue from side streets. In addition, vehicles on Lakeland Avenue waiting to turn left into side streets and driveways impede traffic flow during periods of high arterial activity.

These difficulties will be exacerbated by the addition of site generated traffic. Arterial analyses indicate that the Lakeland Avenue corridor will experience increased delays and decreased travel speeds as a result of the addition of site generated traffic after all phases. The mitigation discussed in the traffic study report returns the overall corridor to pre-development conditions by addressing a small number of significant intersection specific impacts, but would do nothing to address the issue of side street delay at unsignalized locations, which would continue to increase due to the additional site generated traffic. Furthermore, the Phase 6 mitigation includes the elimination of the intersection of Lakeland Avenue at Chester Road. This potential mitigation would require significant redesign of the site plan to afford Chester Road access to the traffic signal at the proposed site access on Lakeland Avenue, or the termination of Chester Road prior to its current terminus at Lakeland Avenue. See response to #4 below for additional information.

The following impacts at signalized intersections were identified based on the intersection capacity analyses conducted for the study:

Phase I

- Lakeland Avenue at NY27 NSR:
  - LOS deteriorates from E to F Friday Evening
  - Study recommends signal timing adjustments
- Johnson Ave at NY27 NSR:
  - Weekday PM LOS from C to D
  - No mitigation suggested

Phase 2

- Minor increases in delay at some locations, no deterioration in LOS
  - Minor signal timing adjustments applied

Phase 3

- Minor increases in delay at some locations, no deterioration in LOS
    - Minor signal timing adjustments applied

Phase 4

- Lakeland Avenue at NY 27 NSR:
    - LOS deteriorates to F with significant increases in delay
    - Study recommends mitigation to widen southbound approach and redistribute green time on signal

- Minor increases in delay at other locations, no deterioration in LOS
    - Minor signal timing adjustments applied

Phase 5

- Lakeland Avenue at Tariff Street / Johnson Avenue:
    - Increased overall intersection and westbound approach delay
    - Study recommends widening northbound approach and retiming existing traffic signal

- Minor increases in delay at other locations, no deterioration in LOS
    - Minor signal timing adjustments applied

Phase 6

- Minor increases in delay at other locations, no deterioration in LOS
    - Minor signal timing adjustments applied

3. **Which roadway(s) and intersection(s) reach "breakdown" as a result of the development alternative? Breakdown defined as a traffic capacity failure of the roadway or intersection requiring multiple traffic signal changes prior to a vehicle passing the intersection.**

As stated above, the intersection of Lakeland Avenue at the NY27 North Service Road will see a deterioration to LOS F due to the traffic generated by Phase I of the proposed project. The study report proposes a minor signal timing adjustment to mitigate this impact. The traffic signals are under the jurisdiction of NYSDOT. After the addition or traffic generated by Phase 4 of the proposed project, the LOS again deteriorates to F. The study report proposes installation of a second dedicated right turn lane on the southbound approach to the intersection. This mitigation is also subject to review and approval by NYSDOT/SCDPW.

4. What roadway or intersection improvements is the applicant proposing to undertake and in what build year to mitigate the project's traffic impacts?

The applicant offers the following improvements as mitigation to the project's impact on the transportation system:

- Lakeland Avenue at the NY27 North Service Road:
    - Phase 4:
        - Widen the southbound approach to provide two through lanes and two right turn lanes.
        - Modify signal timing to reflect revised approach configuration.

See attached exhibit for this proposed configuration. NYSDOT and SCDPW have jurisdiction over this intersection, as Lakeland Avenue is Suffolk County Road 93 north of NY27. Note that the traffic signal would need to be modified to reflect the new lane layouts, including possible installation of new signal heads, signing, pavement markings, etc.

- Lakeland Avenue between the NY27 South Service Road and Chester Road:
    - Phase 6:
        - Widen Lakeland Avenue between Chester Road and 11th Street to provide an additional northbound through lane. The widening will begin around Eastover Road and extend to meet the existing 2 lane section of Lakeland Avenue just north of 11th Street.
        - The segment of Lakeland Avenue between Eastover Road and Gibbons Court will be striped to provide two through lanes and one northbound left turn into the site access.

See attached exhibit for this proposed configuration. The major access point to the site is proposed via a driveway opposite Gibbons Court. This roadway modification should be implemented as part of Phase 1.

- At Lakeland Avenue at Tariff Street / Johnson Avenue:
    - Phase 6:

      Widen the northbound approach to provide an exclusive left turn lane enabling the redistribution of green time to improve the failing westbound approach. See the attached exhibit.

Feasibility of this alternative needs to be determined with respect to right of way. It appears that this improvement would impact on adjacent private property on the west side of the southbound approach. Businesses at this location provide head-in off street parking at that location which may be compromised by this improvement.

- At Lakeland Avenue at Chester Road
    - Phase 6

      Realign Chester Road to provide direct access to Lakeland Avenue via the modified traffic signal at Gibbs Court.

See attached exhibit. Note that this modification, while addressing delay issues at Chester Road and eliminating the less than desirable configuration, would require redesign of the site plan, and could result in increased traffic volumes on Chester Road as drivers seek alternatives to Lakeland Avenue.

5. Does the DEIS traffic study concentrate on the proposed 1,365 multifamily development or did it equally analyze each of the development alternatives?

The Traffic Study provided in depth detailed traffic analysis for the proposed PDD only. The analyses were conducted for each of the proposed six (6) phases of development as identified above. Analysis was provided for the proposed PDD's potential impact during the school year and during non-school summer conditions. Each scope item was examined, including roadway capacity, impact on municipal parking, impact on LIRR parking, impact on school traffic, etc.

No specific analyses were conducted for the development alternatives, including the as of right development. Rather, the study drew rough comparisons between the trip generation estimates for the various phases as compared to the development alternatives, and stated that since the trip generation and land uses were similar, the traffic impacts would be similar as well.

No discussion or analysis was provided regarding development alternatives' impacts on other facilities including parking, public transportation, school traffic, etc.

The above provides a summary of the impacts in response to your inquiries. If you have any questions, I can be reached at 631 286 8668 ext. 272, or by email at vcorrado@lkma.com.

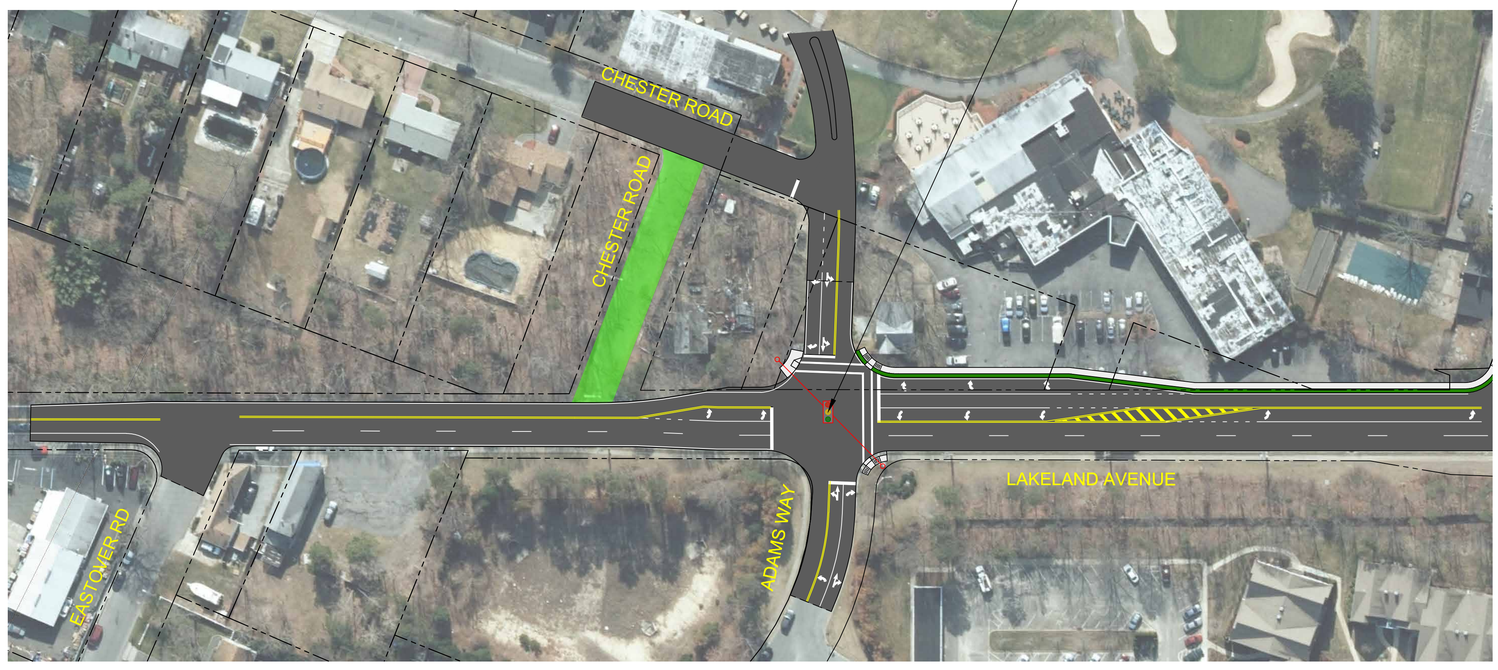
ATTACHMENTS

60 0 30 60 120

GRAPHIC SCALE
(IN FEET)
1 INCH = 60 FEET

NORTH

EXISTING CONDITIONS



No.	DATE	REVISION	BY:
-	-	-	-/-

CONSULTANT:
NELSON & POPE
ENGINEERS • SURVEYORS
572 WALT WHITMAN ROAD, MELVILLE, N.Y. 11747-2188
(631) 427-5665 FAX (631) 427-5620
WWW.NELSONPOPE.COM

CLIENT:
RECHLER EQUITY PARTNERS
PLAINVIEW, NEW YORK

DWN. BY:	EL
CHK'D BY:	RS
DATE:	2020-03-26
JOB No.:	16130
CADD:	CONCEPT PLAN
SCALE:	AS SHOWN

DRAWING TITLE:
FIGURE 31
CLOSURE OF CHESTER RD AT LAKELAND AVENUE
GREY BARN
AT ISLAND HILLS

DRAWING NUMBER:
FIG - 31

SHEET: 1 OF 1

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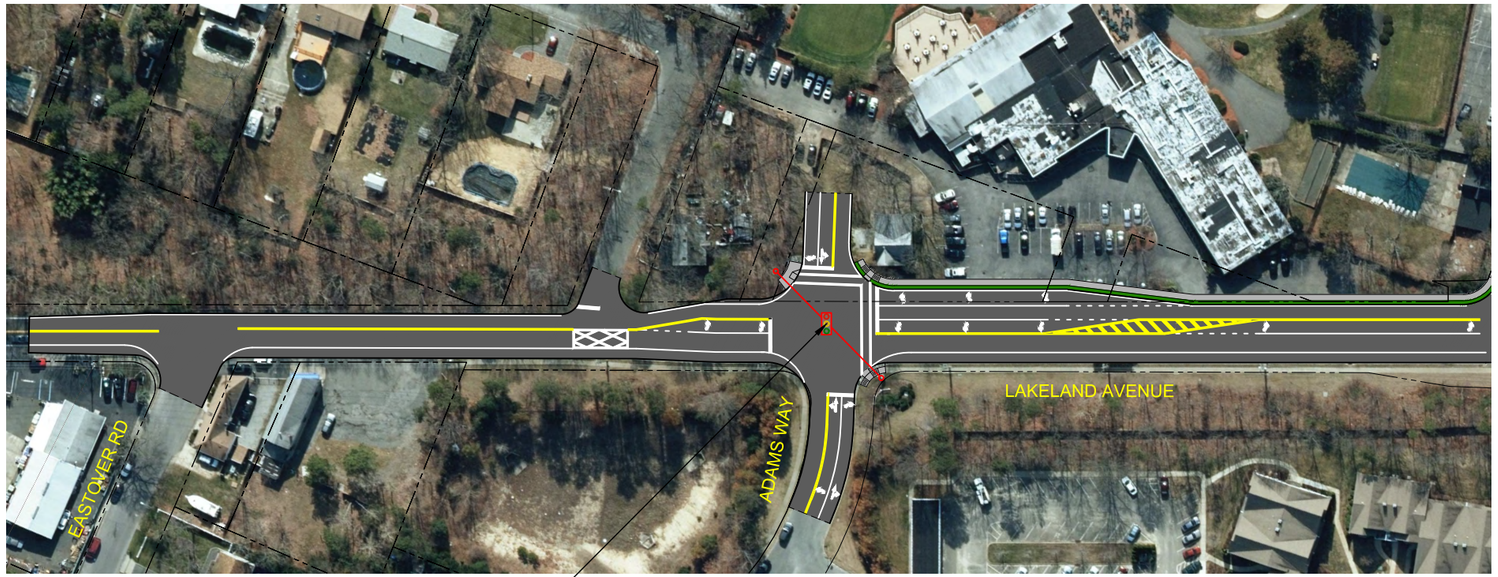
GRAPHIC SCALE
(IN FEET)
1 INCH = 60 FEET

NORTH

EXISTING CONDITIONS



MODIFY EXISTING TRAFFIC SIGNAL

No.	DATE	REVISION	BY:
-	-	-	-/-

CONSULTANT:
NELSON & POPE
ENGINEERS • SURVEYORS
572 WALT WHITMAN ROAD, MELVILLE, N.Y. 11747-2188
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CLIENT:
RECHLER EQUITY PARTNERS
PLAINVIEW, NEW YORK

DWN. BY:	EL
CHK'D BY:	RS
DATE:	11/6/18
JOB No.:	16130
CADD:	CONCEPT PLAN
SCALE:	AS SHOWN

DRAWING TITLE:
FIGURE 27
LAKELAND AVENUE AT SITE ACCESS
GREY BARN
AT ISLAND HILLS

DRAWING NUMBER:
FIG - 27

SHEET: 1 OF 1

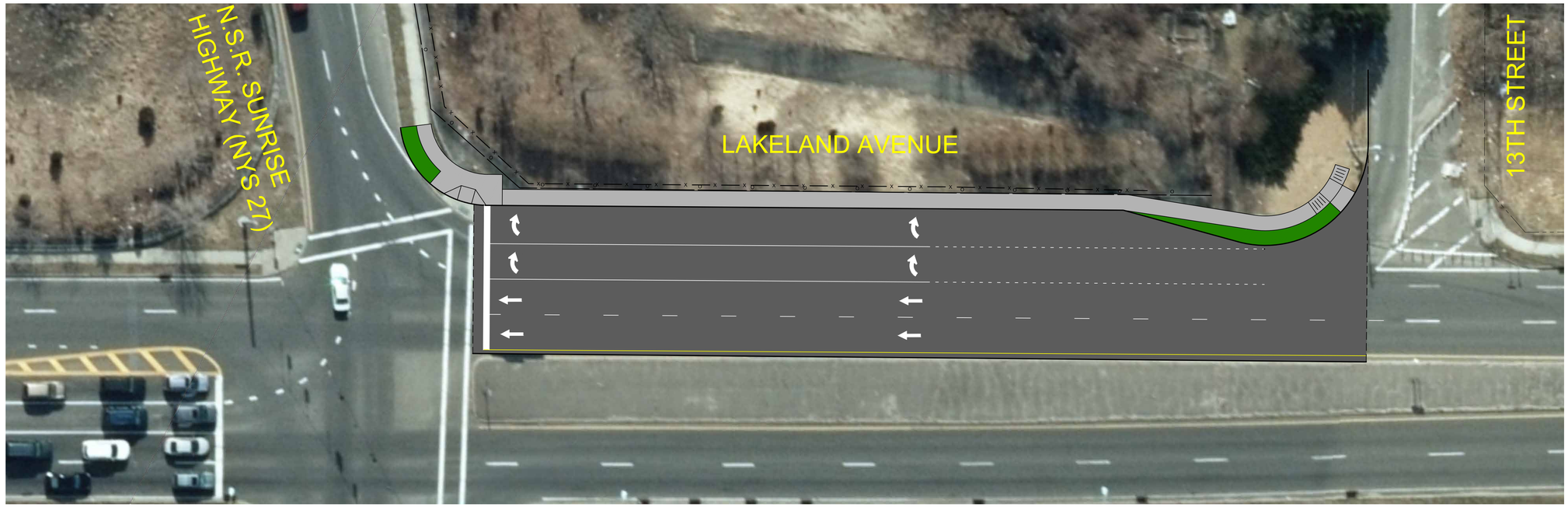
GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 INCH = 20 FEET

NORTH

EXISTING CONDITIONS



No.	DATE	REVISION	BY:
-	-	-	-/-

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CLIENT:

RECHLER EQUITY PARTNERS
PLAINVIEW, NEW YORK

DWN. BY:	EL
CHK'D BY:	RS
DATE:	11/6/18
JOB No.:	16130
CADD:	CONCEPT PLAN
SCALE:	AS SHOWN

DRAWING TITLE:

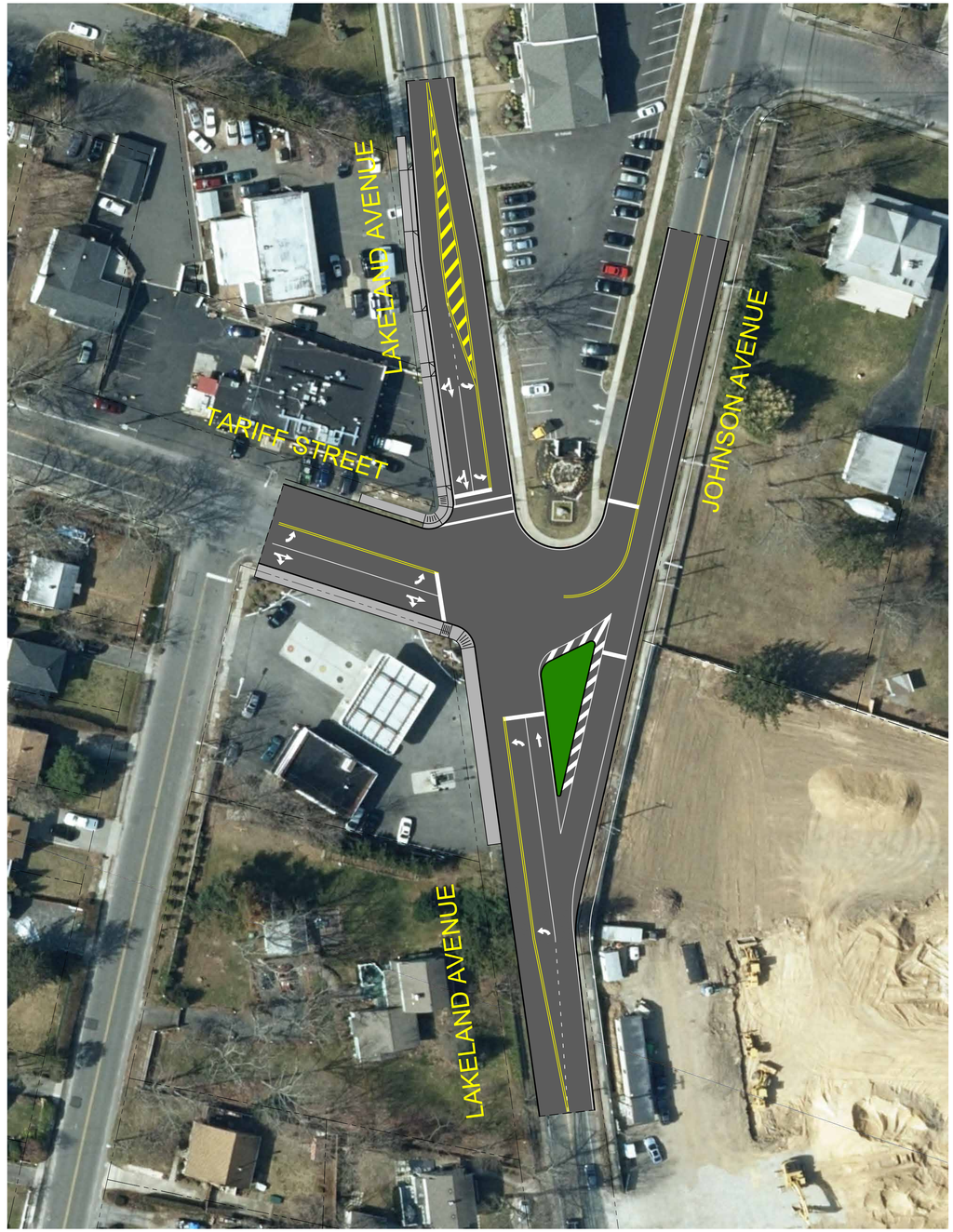
FIGURE 28

LAKELAND AVENUE AT NYS ROUTE 27 NORTH SERVICE RD
GREY BARN
AT ISLAND HILLS

DRAWING NUMBER:

FIG - 28

SHEET: 1 OF 1



GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 INCH = 20 FEET

NORTH

EXISTING CONDITIONS

No.	DATE	REVISION	BY:
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CLIENT:
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PLAINVIEW, NEW YORK

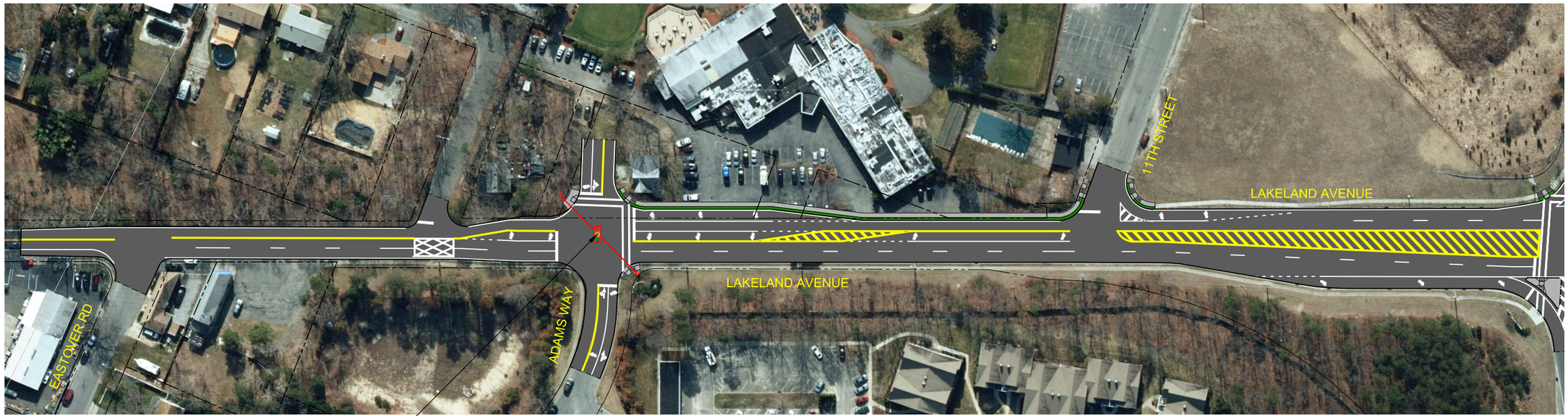
DWN. BY:	EL
CHK'D BY:	RS
DATE:	11/6/18
JOB No.:	16130
CADD:	CONCEPT PLAN
SCALE:	AS SHOWN

DRAWING TITLE:
FIGURE 29
LAKELAND AVENUE AT TARIFF STREET / JOHNSON AVENUE
GREY BARN
AT ISLAND HILLS

DRAWING NUMBER:
FIG - 29

SHEET: 1 OF 1

EXISTING CONDITIONS



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GRAPHIC SCALE
(IN FEET)
1 INCH = 60 FEET

NORTH

No.	DATE	REVISION	BY:
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CLIENT:
RECHLER EQUITY PARTNERS
PLAINVIEW, NEW YORK

DWN. BY:	EL
CHK'D BY:	RS
DATE:	9/10/19
JOB No.:	16130
CADD:	CONCEPT PLAN
SCALE:	AS SHOWN

DRAWING TITLE:
FIGURE 30
LAKELAND AVENUE BETWEEN EASTOVER ROAD AND 11TH STREET
GREY BARN
AT ISLAND HILLS

DRAWING NUMBER:
FIG - 30

SHEET: 1 OF 1

Appendix F-5
N&P Response Memo to LKMA

December 24, 2020

NELSON+POPE
engineers • architects • surveyors

70 Maxess Road
Melville, New York 11747
631.427.5665

MEMO

To: Jessica M. Joyce, Senior Environmental Analyst, Town of Islip Department of Planning and Development

From: Osman Barrie, PE, PTOE, PTP

Date: December 24, 2020

Project: Island Hills Planned Development District (PDD)

N+P No: 16130

Subject: Island Hills Traffic Impact Study Review

Nelson + Pope is in receipt of your memo dated December 7, 2020 containing LKMA responses to your questions regarding the above proposed project. Upon review of the memo, we offer the following responses to your questions. For ease of review, we have included the Town's Questions, LKMA's responses were necessary and our responses.

1. **Town Question 1** - What does the Institute of Traffic Engineer's trip generation manual state is the total daily trips generated for the as of right single-family development versus each of the applicant's DEIS development alternatives?

   Response from Nelson + Pope - The LKMA memo of December 7, 2020 summarizes the trip generation data from the NPV DEIS for the proposed project and alternatives.

2. **Town Question 2** - Does the DEIS traffic study identify which roadway(s) and intersection(s) in the adopted scope of work, are adversely impacted (a reduction in the A-F capacity rating) by each development alternative?

   Extract from LKMA response to Town Question 2:

   a. *The study also notes that side street approaches to Lakeland Avenue at unsignalized intersections experience significant delays, which increase as a result of the addition of site generated traffic. No mitigation is suggested at any of the unsignalized intersection locations. Lakeland Avenue experiences periods of uninterrupted traffic flow which results in difficulty for vehicles entering or*

crossing Lakeland Avenue from side streets. In addition, vehicles on Lakeland Avenue waiting to turn left into side streets and driveways impede traffic flow during periods of high arterial activity.

Response from Nelson + Pope- The mitigations proposed for the project did improve the operation of the unsignalized intersections.

It should be noted as part of the Town's request, we conducted field delay studies at the study intersections to calibrate the results of the synchro models. From the review of the results, the measured delays at the stop-controlled approaches to unsignalized intersections along the Lakeland Avenue/Railroad Avenue corridor were observed to be lower than the delays calculated from the Synchro model (using software default values). Therefore, in order to estimate more realistic project impacts two sets of analyses were conducted for the unsignalized intersections along the Lakeland Avenue/Railroad Avenue corridor during the school AM and PM peak hours

- **Calibrated Synchro Model** - The critical gap acceptances and/or the vehicle follow-up times for the stop-controlled approaches of the unsignalized intersections in the synchro models were adjusted to calibrate the synchro models to reflect field queues and delays. The calibrated synchro models were then used to conduct the future traffic analyses to estimate project impacts.

- **No Calibration**- As previously mentioned, the field measured delays are lower than the delays calculated from the synchro model. Hence, the results of the capacity analyses with the higher default values in the synchro are conservative. Capacity analyses were conducted for the unsignalized intersections during the peak periods studied using the default values.

The results of the unsignalized intersection capacity analyses contained in the report show that during phase 6 of the proposed project (Worst case scenario - Full Build-Out), 4 out of 19 unsignalized intersections studied see some increase in delays during some peak periods with the No Calibration analyses and only 2 out of the 19 intersection will see changes of LOS (Lakeland Ave at Chester Avenue and Lakeland Ave at 11th St) with the calibrated analyses.

The mitigation proposed for phase 6 mitigated the impacts created at these small number of unsignalized intersections that see some increase in delays.

b. Furthermore, the Phase 6 mitigation includes the elimination of the intersection of Lakeland Avenue at Chester Road. This potential mitigation would require significant redesign of the site plan to afford Chester Road access to the traffic signal at the proposed site access on Lakeland Avenue, or the termination of Chester Road prior to its current terminus at Lakeland Avenue. See response to #4 below for additional information.

Nelson + Pope Response: As can be seen on the concept plan, the elimination of the Lakeland Avenue at Chester Road will only require the extension of Chester Road to intersect the site access. This will not require a significant redesign of the site plan.

The proposed mitigation for each of the phases mitigated the impacted intersections and the operation of the corridor back to No Build Condition levels or better.

3. **Town Question 3 - Which roadway(s) and intersection(s) reach "breakdown" as a result of the development alternative? Breakdown defined as a traffic capacity failure of the roadway or intersection requiring multiple traffic signal changes prior to a vehicle passing the intersection.**

   LKMA response to Question 3:

   As stated above, the intersection of Lakeland Avenue at the NY27 North Service Road will see a deterioration to LOS F due to the traffic generated by Phase I of the proposed project. The study report proposes a minor signal timing adjustment to mitigate this impact. The traffic signals are under the jurisdiction of NYSDOT. After the addition or traffic generated by Phase 4 of the proposed project, the LOS again deteriorates to F. The study report proposes installation of a second dedicated right turn lane on the southbound approach to the intersection. This mitigation is also subject to review and approval by NYSDOT/SCDPW.

   Nelson + Pope Response - As stated, the proposed mitigation of each of the phases mitigated the impacted intersections and the operation of the corridor back to the No Build Condition levels or better. All mitigations will be coordinated with agencies that have jurisdiction over the intersections in question.

4. **Town Question 4 - What roadway or intersection improvements is the applicant proposing to undertake and in what build year to mitigate the project's traffic impacts?**

   Nelson + Pope Response - The response from LKMA corresponds to the client's improvement plans.

5. **Town Question 5- Does the DEIS traffic study concentrate on the proposed 1,365 multifamily development or did it equally analyze each of the development alternatives?**

   LKMA response to Question 5:

   The Traffic Study provided in depth detailed traffic analysis for the proposed PDD only. The analyses were conducted for each of the proposed six (6) phases of development as identified above. Analysis was provided for the proposed PDD's potential impact during the school year and during non-school summer conditions. Each scope item was examined, including roadway capacity, impact on municipal parking, impact on LIRR parking, impact on school traffic, etc.

   No specific analyses were conducted for the development alternatives, including the as of right development. Rather, the study drew rough comparisons between the trip generation estimates for the various phases as compared to the development alternatives and stated that since the trip generation and land uses were similar, the traffic impacts would be similar as well.

No discussion or analysis was provided regarding development alternatives' impacts on other facilities including parking, public transportation, school traffic, etc.

Nelson +Pope Response - A Trip Generation analysis is considered a specific analysis. Detailed trip generation comparison analyses were conducted for all the alternatives. As detailed in the traffic study and illustrated below, it should be noted that trips from the Alternatives are similar or comparable to trips estimated for some of the phases of the proposed PDD. Hence the capacity analyses result for the Alternatives phases would be comparable or similar to the capacity analyses results for these project phases.

- As stated in the Alternatives section of the traffic study, Alternative 2 generates more trips than Phase 1 of the proposed project but less trips than Phase 2 of the proposed project. Based on the capacity analyses conducted for Phase 1 and Phase 2 of the proposed project discussed in traffic analyses section of the report, it was concluded that the construction of Phase 1 and Phase 2 of the proposed project will not result in significant traffic impacts on the study intersections and surrounding roadways. Based on the trip generation comparison for Alternative 2 and Phases 1 and 2 of the proposed project, the same conclusion can be made for Alternative 2.

- As stated in the Alternatives section of the traffic study, the trips generated by Alternative 3 are similar to those for Phase 6 of the proposed project. Based on the capacity analyses conducted for Phase 6 of the proposed project, discussed in traffic analyses section of the report, it was concluded that the construction of Phase 6 will require physical improvements at the intersections of Lakeland Avenue and NYS Route 27 North Service and Lakeland Avenue and Tariff Street/Johnson Avenue. With these improvements, Phase 6 of the proposed project will not significantly impact the operation of the intersections within and around the Study Area. Based on the trip generation comparison for Alternative 3 and Phase 6 of the proposed project, the same conclusion can be made for Alternative 3.

- As stated in the Alternatives section of the traffic study, Alternative 4 generates more trips than Phase 1 of the proposed project but less trips than Phase 2 of the proposed project. Based on the capacity analyses conducted for Phase 1 and Phase 2 of the proposed project, discussed in traffic analyses section of the report, it was concluded that the construction of Phase 1 and Phase 2 of the proposed project will not result in significant traffic impacts on the study intersections and surrounding roadways. Based on the trip generation comparison for Alternative 4 and Phases 1 and 2 of the proposed projects, the same conclusion can be made for Alternative 4.

- As stated in the Alternatives section of the traffic study, the trips generated by Alternative 5 are similar to those for Phase 6 of the proposed project. Based on the capacity analyses conducted for Phase 6 of the proposed project discussed in traffic analyses section of the report, it was concluded that the construction of Phase 6 will require physical improvements at the intersections of Lakeland Avenue and NYS Route 27 North Service and Lakeland Avenue and Tariff Street/Johnson Avenue. With these improvements, Phase 6 of the proposed

project will not significantly impact the operation of the intersections within and around the Study Area. Based on the trip generation comparison for Alternative 5 and Phase 6 of the proposed project, the same conclusion can be made for Alternative 5.

- Alternative 7 is based on the development of the site with 1,365 multi-family residential units. The unit count for Alternative 7 is equal to Phase 6 of the proposed project and therefore, the results of the capacity analysis will be the same.

- As stated in the Alternatives section of the traffic study, the trips generated by Alternative 8 are similar to those for Phase 4 of the proposed project. Based on the capacity analyses conducted for Phase 4 of the proposed project discussed in traffic analyses section of the report, it was concluded that the construction of Phase 4 will require physical improvements at the intersection of Lakeland Avenue and NYS Route 27 North Service. With these improvements, Phase 4 of the proposed project will not significantly impact the operation of the intersections within and around the Study Area. Based on the trip generation comparison for Alternative 8 and Phase 4 of the proposed project, the same conclusion can be made for Alternative 8.

The following tables summarize the potential results of the analyses for the Alternatives. Also included is a copy of the page with the criteria that defines significant impacts contained in the Town of Islip Subdivision and Land Development regulations.

Analyses results and mitigations for Alternatives

Alternative	Phase comparable to Alternative	Analyses results and mitigations proposed for Phase	Analyses results and mitigation for Alternative
Alternative 2	**Phase 2**	The analyses indicated that 34 of the 36 study intersections will continue to operate at No Build levels of Service (LOS) after the completion of the Phase 2 of the proposed project. Two intersections did experience changes in LOS from the No Build to Build Conditions. However, with the minor signal adjustments that can be accommodated by the current signal controllers, these two intersections will continue to operate at No Build levels or better after the completion of Phase 2 of the project.	The reuslts of the analyses and conclusions/mitigations for Alternaive 2 will be simlar to those for Phase 2 of the project.
Alternative 3	**Phase 6**	The analyses indicated that two signalized intersections will require physical improvements and the rest of the signalized intersections will continue to operate at No Build LOS with minor signal timing adjustments were necessary. The proposed mitigations will improve both the operation of the arterial and the measures of effectiveness after the construction of Phase 6 of the project. Mitigations for Phase 6 includes: **a.** Redesign of the intersection of NY 27 North Service Road at Lakeland Avenue to provide two exclusives through lanes and two exclusive right turn lanes. Minor signal timing adjustments will also be conducted for the northbound left turn phase – Mitigation for Phase 4 **b**.Widen the northbound approach at the intersection of Lakeland Avenue and Tariff Street/Johnson Avenue to provide an exclusive left turn lane enabling the redistribution of green time to improve the failing westbound approach – Mitigation for Phase 5 **c**.Widen Lakeland Avenue between Chester Road and 11th Street to provide an additional northbound through lane. The widening will begin around Eastover Road and extends to meet the existing 2 lane section of Lakeland Avenue just north of 11th Street. **d**.Eliminate the intersection of Lakeland Avenue and Chester Road. The east-west portion of Chester Road will be eliminated and access to Chester Road will be provided via a new intersection of Chester Road and Signalized Access.	The results of the analyses and conclusions/mitigations for Alternative 3 will be similar to those for Phase 6 of the project.

Alternative	Phase comparable to Alternative	Analyses results and mitigations proposed for Phase	Analyses results and mitigation for Alternative
Alternative 4	**Phase 2**	The analyses indicated that 34 of the 36 study intersections will continue to operate at No Build levels of Service (LOS) after the completion of the Phase 2 of the proposed project. Two intersections did experience changes in LOS from the No Build to Build Conditions. However, with the minor signal adjustments that can be accommodated by the current signal controllers, these two intersections will continue to operate at No Build levels of better after the completion of Phase 2 of the project.	The reuslts of the analyses and conclusions/mitigations for Alternaive 4 will be simlar to those for Phase 2 of the project.
Alternative 5	**Phase 6**	The analyses indicated that two signalized intersections will require physical improvements and the rest of the signalized intersections will continue to operate at No Build LOS with minor signal timing adjustments were necessary. The proposed mitigations will improve both the operation of the arterial and the measures of effectiveness after the construction of Phase 6 of the project. Mitigations for Phase 6 includes: **a.** Redesign of the intersection of NY 27 North Service Road at Lakeland Avenue to provide two exclusives through lanes and two exclusive right turn lanes. Minor signal timing adjustments will also be conducted for the northbound left turn phase – Mitigation for Phase 4 **b**.Widen the northbound approach at the intersection of Lakeland Avenue and Tariff Street/Johnson Avenue to provide an exclusive left turn lane enabling the redistribution of green time to improve the failing westbound approach – Mitigation for Phase 5 **c**.Widen Lakeland Avenue between Chester Road and 11th Street to provide an additional northbound through lane. The widening will begin around Eastover Road and extends to meet the existing 2 lane section of Lakeland Avenue just north of 11th Street. **d**.Eliminate the intersection of Lakeland Avenue and Chester Road. The east-west portion of Chester Road will be eliminated and access to Chester Road will be provided via a new intersection of Chester Road and Signalized Access.	The results of the analyses and conclusions/mitigations for Alternative 5 will be similar to those for Phase 6 of the project.

Alternative	Phase comparable to Alternative	Analyses results and mitigations proposed for Phase	Analyses results and mitigation for Alternative
Alternative 7	**Phase 6**	The analyses indicated that two signalized intersections will require physical improvements and the rest of the signalized intersections will continue to operate at No Build LOS with minor signal timing adjustments were necessary. The proposed mitigations will improve both the operation of the arterial and the measures of effectiveness after the construction of Phase 6 of the project. Mitigations for Phase 6 includes: **a.** Redesign the intersection of NY 27 North Service Road at Lakeland Avenue to provide two exclusives through lanes and two exclusive right turn lanes. Minor signal timing adjustments will also be conducted for the northbound left turn phase – Mitigation for Phase 4 **b**.Widen the northbound approach at the intersection of Lakeland Avenue and Tariff Street/Johnson Avenue to provide an exclusive left turn lane enabling the redistribution of green time to improve the failing westbound approach – Mitigation for Phase 5 **c**.Widen Lakeland Avenue between Chester Road and 11th Street to provide an additional northbound through lane. The widening will begin around Eastover Road and extends to meet the existing 2 lane section of Lakeland Avenue just north of 11th Street. **d**.Eliminate the intersection of Lakeland Avenue and Chester Road. The east-west portion of Chester Road will be eliminated and access to Chester Road will be provided via a new intersection of Chester Road and Signalized Access.	The results of the analyses and conclusions/mitigations for Alternative 7 will be the same as those for Phase 6 of the project.
Alternative 8	**Phase 4**	The analyses indicated that one signalized intersection will require physical improvements and the rest of the signalized intersection will continue to operate at No Build LOS with minor signal timing adjustments where necessary. The proposed mitigations will improve both the operation of the arterial and the measures of effectiveness after the construction of Phase 4 of the project. Mitgation for Phase 4 includes the redesign of the intersection of NY 27 North Service Road at Lakeland Avenue to provide two exclusives through lanes and two exclusive right turn lanes. Minor signal timing adjustments will also be conducted for the northbound left turn phase.	The reuslts of the analyses and conclusions/mitigations for Alternaive 8 will be simlar to those for Phase 4 of the project

Appendix F-6
Town Traffic Consultant Letter

L. K. McLean Associates, P.C.

August 2, 2018

LKMA

L. K. McLean Associates, P.C.

437 South Country Road • Brookhaven • New York • 11719

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ANDREW B. SPEISER
MATTHEW C. JEDLICKA, LEED AP
KEITH J. MASSERIA, P.E.
VINCENT A. CORRADO, P.E.

Memorandum

To: Sean Colgan, Principal Planner
Town of Islip Planning Department
655 Main Street
Islip, NY 11751

From: Vincent Corrado, P.E., Associate
Louis K. McLean Associates, P.C.

Date: August 2, 2018

Subject: Island Hills DEIS Trip Distribution, Traffic Growth, Peak hours and No Build/Build years

This memorandum provides the results of our transportation engineering review of the draft methodology submitted by the applicant's engineer in connection with the above. The submission included a proposed methodology for trip distribution, background traffic growth rate, peak analysis hours and projected no-build and build horizon years. Provided below are the requirements for these elements from the Final Scope for the DEIS dated June 19, 2018 as it appears on the Town of Islip's website, followed by the applicant's proposed approach and methodology and our comments thereon. The applicant's full submission is attached. The following sections present the results of our review in this regard.

1. TRIP DISTRIBUTION AND ASSIGNMENT

DEIS Final Scope Requirement:

"Prepare a trip distribution and assignment of traffic anticipated to be generated by the proposed residential development. Directional distribution and assignment of site-generated traffic must be based on an analysis of likely origins and destinations of site-generated trips. Assumptions regarding trip-making characteristics, including number of trips, trip purpose, and temporal distribution must be documented (e.g. US Census, the Suffolk County Comprehensive Plan 2035, Islip Town Planning documents, information from the New York Metropolitan Transportation Council (NYMTC), the Metropolitan Planning Organization (MPO) representing New York City, Long Island and the lower Hudson Valley). "

Applicant Proposed Methodology:

"To develop the weekday and weekend directional trip distribution and assignment for the Island Hills project the following documents were reviewed:

- *US Census data for Town of Islip and Sayville*
- *The Suffolk County Comprehensive Plan 2035*
- *The New York Metropolitan Transportation Council (NYMTC) Regional Transportation Plan – Plan 2045*

Based on the review of these documents, the Journey-To-Work Census data for the Town of Islip and Sayville was utilized to determine the percent distribution of traffic. The Journey-To-work data from the following sources was utilized:

- *Sayville CDP Journey-To-Work Data from the US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.*
- *Sayville CDP Journey-To-Work Day from the NYS Department of Transportation Planning and Strategic Group Analysis and Forecasting Bureau – Journey -To-Work Selection Program 2000*
- *Islip Town Journey-To-Work Data from the US Census Bureau, 2009-2013 American Community Survey 5-Year Estimates.*

The trip distribution was developed by averaging the percent distributions estimated for the Town of Islip and Sayville based on the Journey-To-Work data obtained for residents of Sayville and Islip. The anticipated routes taken to work by residents of the proposed residential development during weekdays were determined using Google Maps direction tools. The Saturday trip distribution was developed with the assumption that a significant amount of the weekend trips are shopping and recreational trips and not work related. Therefore, the weekday trip distribution was adjusted to reflect more people traveling to downtown Sayville and other shopping and recreational destinations. The following table is a summary of the average anticipated trip distributions for the proposed residential development."

Table1: Weekday Trip Distribution

Travel Route	Distribution - Sayville 2012-2016 Journey-To-Work data	Distribution - Sayville 2000 Journey-To-Work data	Distribution - Islip 2009-2013 Journey-To-Work data	Average Distribution
To Lakeland Ave NB	40.0%	39.6%	34.7%	38%
Lakeland Ave NB to RT27 EB	18.0%	19.7%	13.2%	17%
Lakeland Ave NB to RT27 WB	33.0%	22.4%	36.6%	31%
Lakeland Ave SB to Railroad Ave	3.0%	14.8%	12.00%	10%
Terry Rd to Cherry Ave	6.0%	3.4%	3.5%	4%
Total	100%	100.0%	100%	100%

Table 2: Weekend Trip Distribution

Travel Route	Distribution - Sayville 2012-2016 Journey-To-Work data	Distribution - Sayville 2000 Journey-To-Work data	Distribution - Islip 2009-2013 Journey-To-Work data	Average Distribution
To Lakeland Ave NB	30.0%	30.0%	28.0%	29%
Lakeland Ave NB to RT27 EB	22.0%	22.3%	15.2%	20%
Lakeland Ave NB to RT27 WB	28.0%	22.4%	26.6%	26%
Lakeland Ave SB to Railroad Ave	11.0%	19.8%	19.70%	17%
Terry Rd to Cherry Ave	9.0%	5.5%	10.5%	8%
Total	100%	100.0%	100%	100%

LKMA Findings

The applicant's approach is in keeping with the requirements of the scope, and adequately and completely addresses this item. The results provide a reasonable estimate of the general distribution of trips that could be generated by residential development of the project site at the density described in the report, and can be used for the purpose of trip assignments for impact analyses. The transportation element of the DEIS should provide detailed trip assignments to the local roadways, shown on traffic flow maps, which will be subject to further review. All other conditions of the scope continue to apply. See the attachment for additional documentation referenced in the applicant's response.

2. BACKGROUND TRAFFIC GROWTH RATE

DEIS Final Scope Requirement:

"Develop future No Build volumes for the study intersections. The background traffic growth rate should consider US census population projections, information developed for the New York Metropolitan Transportation Council's Best Practices Model (BPM) and the Suffolk County Comprehensive Plan 2035, and the 2009 Sunrise Highway Corridor Study. Provide documentation of the methodology utilized."

Applicant Proposed Methodology:

"To develop the background traffic growth rate, Nelson & Pope considered the US census population projections, information developed for the New York Metropolitan Transportation Council's Best Practices Model (BPM) and the Suffolk County Comprehensive Plan 2035, and the 2009 Sunrise Highway Corridor Study.

- *Based on the 2000 and 2010 US census data, the Sayville population grew from 16,735 to 16,853.*

- *This is a growth in population of 118 people over a 10-year period, which is equivalent to a 0.07% growth rate per year. Based on the Average Annual Growth Rate for Vehicle-Miles Travel (VMT) developed by NYMTC, the average annual growth rate for Suffolk County ranges from 0.37% to 0.71% depending on the functional classification of the roadway. Based on the functional classifications of roadways within the study area, the growth rate will either be 0.47% or 0.71%. We are therefore proposing to use a growth factor of* ***0.59% per year*** *(an average of the 0.47% and 0.71% annual growth rates)."*

LKMA Findings

The applicant's approach is in keeping with the requirements of the scope, and adequately and completely addresses this item. The results provide a reasonable estimate of the background traffic growth and can be used for the purpose of impact analyses. All other conditions of the scope continue to apply. See the attachment for additional documentation referenced in the applicant's response.

3. PEAK HOURS TO BE ANALYSED DURING SCHOOL PEAK SEASON

DEIS Final Scope Requirement:

"Perform capacity analyses for the study intersections and roadways identified above. Analyses will be performed using the Synchro and Simtraffic 10 software in order to provide level of service results for the study network. Analyses shall include peak school year and summer season weekday and weekend hours. Peak hours should be determined based on automatic traffic recorder (ATR) counts conducted on the facilities in question during summer and non-summer season prior to the collection of turning movement counts. Summer season analyses should consider Friday PM traffic, due to heavy eastbound recreational traffic. Vehicle classifications and pedestrian counts should be reflected in the simulation and evaluation models. Simulations should be provided using Simtraffic."

"Install Automatic Traffic Recorder (ATR) machines for a period of one (1) standard full school week not preceding or succeeding a federal holiday or school closure and for one (1) week during the peak summer season, at the following roadways within the study area to obtain hourly and daily (24 hour) volumes to verify the peak hours and to supplement the turning movement counts:

1. NYS Route 27 South Service Road between Smithtown Avenue and Lakeland Ave
2. Lakeland Avenue
3. Johnson Avenue
4. Smithtown Avenue
5. Terry Road
6. Bohemia Pkwy
7. 11th Street
8. Chester Road
9. Carrie Avenue
10. Railroad Avenue
11. Greene Avenue
12. Greeley Avenue

13. Cherry Avenue
14. Brook Street
15. Montauk Highway

ATR's should include volumes and speeds."

Applicant Proposed Methodology:
To the identify the peak hours to be studied during the school peak season, Automatic Traffic Recorder (ATR) machines were installed at the following locations for a period of one (1) week from June 4, 2018 to June 10, 2018.

1. *NYS Route 27 South Service Road between Smithtown Avenue and Lakeland Ave*
2. *Terry Road*
3. *Bohemia Blvd*
4. *11th Street*
5. *Chester Road*
6. *Carrie Avenue*
7. *3rd Street*
8. *Marion Street*
9. *Cherry Avenue*
10. *Brook Street*
11. *Railroad Avenue*
12. *Greene Avenue*
13. *Greeley Avenue*
14. *Lakeland Ave between Eastover Rd*
15. *Johnson Ave south of Sunrise Highway South Service Road*
16. *Smithtown Ave between Sunrise Highway South Service Road and Terry Road*
17. *Montauk Highway*

The ATR count data was tabulated and summarized to identify the peak hours to be utilized in the processing of the turning movement counts. Based on the review of the ATR data, the School peak season turning movement counts were processed during the weekday AM (7-9am), weekday PM(3- 6pm) and Saturday midday (11am-1pm) peak hours as shown on the table below. The ATR data and summaries are contained in Appendix C of this memorandum."

Table 3: Peak Hour summary

Peak Period	Start Time	Total Volumes
Weekday AM	7am	4804.5
	8am	4666.4
	9am	4590.7
	10am	4229.7
	11am	5048.7
Weekday PM	2pm	6199.3
	3pm	6767.6
	4pm	6746.7
	5pm	6953.1
	6pm	6057.4
	7pm	4692.8
Saturday	10am	5757.0
	11am	6410.0
	12pm	6442.0
	1pm	5953.0
	2pm	5760.0
	3pm	5562.0

LKMA Findings

The applicant's approach is in keeping with the requirements of the scope, and adequately and completely addresses this item. The results provide a reasonable approach to the determination of peak hours to be included in the transportation engineering analyses for the school year. The submission states that the ATR's were conducted between June 4 and June 10, 2018. The applicant had previously provided documentation from the Sayville and Connetquot School Districts that June 6 and June 7 2018 represent typical school year traffic conditions. While a review of the ATR data indicates that no anomalies are evident that would indicate atypical school traffic activities during the rest of the week in question, it is recommended that the applicant obtain specific documentation in that regard. Therefore, the proposed peak hours can be used for the purpose intended.

Note that additional analyses during other hours may be required to address element and location-specific issues, including the LIRR crossing(s), where field observations should be conducted to document impacts that may not be immediately apparent based solely on ATR data. Traffic flows on Railroad Avenue have been observed to be significantly impacted during evening hours when LIRR activity is high. All other conditions of the scope continue to apply. See the attachment for additional documentation referenced in the applicant's response.

4. PROJECT PHASING

DEIS Final Scope Requirement:

"If the project is phased, analyses should be conducted and mitigation developed for each phase. Mitigation should be implemented prior to the completion of each phase, and its effectiveness evaluated. Only mitigation proposed to be implemented by the developer should be reflected in the mitigated condition as the no build for subsequent phases. "

Applicant Proposed Methodology:

Based on information obtained from the applicant, the proposed PDD will be constructed in six (6) phases. We are therefore conducting the traffic analyses for six (6) scenarios, one (1) for each phase. The following table summarizes the anticipated construct and build year for each phase.

Table 4: No Build and Build Analyses years

Phase	Start	Duration	End	No Build Analysis year	Build Analysis year
Phase 1	06.01.2020	16 months	10.01.2021	2021	2021
Phase 2	04.01.2021	16 months	08.01.2022	2022	2022
Phase 3	02.01.2022	20 months	10.01.2023	2023	2023
Phase 4	04.01.2023	20 months	12.01.2024	2024	2024
Phase 5	06.01.2024	16 months	10.01.2025	2025	2025
Phase 6	04.01.2025	16 months	08.01.2026	2026	2026

LKMA Findings

The applicant's approach is in keeping with the requirements of the scope, and adequately and completely addresses this item. The results provide a reasonable approach, and can be used for the purpose of impact analyses. All other conditions of the scope continue to apply. It is anticipated that phased site plans will be provided for review that provide additional information including the number of units in each phase, proposed mitigation, proposed infrastructure to support each phase, etc. See the attachment for additional documentation referenced in the applicant's response.

In summary, based on the forgoing, and subject to any conditions set forth in our findings, the proposed methodologies are acceptable for the purposes described.

Thank you for the opportunity to be of service to the people of the town of Islip. If you have any questions or need any further information, please contact me.

Appendix F-7
Town Traffic Consultant e-mail

L. K. McLean Associates. P.C.

September 20, 2018

From:	Vin Corrado
To:	Osman Barrie
Cc:	jjoyce@islipny.gov; scolgan@islipny.gov; Guy germano (gwg@germanocahill.com); Joe Pecora; Matt Mattera; Eric Mcferran; Chic Voorhis; McCabe, Kristen
Subject:	RE: island hills Conference Call
Date:	Thursday, September 20, 2018 8:46:12 AM
Attachments:	image001.png

Osman
In consideration of our discussion and correspondence on this matter, LKMA agrees with your conclusion. The traffic analyses to be conducted for the 2026 full build scenario should be sufficient to evaluate the projected traffic conditions, and to determine the effectiveness of mitigation measures developed to mitigate impacts.
Therefore, the post-construction analyses scenarios for 2031 and 2036 need not be provided.
Vin

Vincent A. Corrado, PE | Associate

L.K. McLean Associates, P.C.
t (631) 286-8668 | **f** (631) 286-6314 |
LKMA

From: Osman Barrie [mailto:OBarrie@nelsonpope.com]
Sent: Wednesday, September 19, 2018 8:32 PM
To: Vin Corrado <Vcorrado@lkma.com>
Cc: jjoyce@islipny.gov; scolgan@islipny.gov; Guy germano (gwg@germanocahill.com) <gwg@germanocahill.com>; Joe Pecora <JPecora@nelsonpope.com>; Matt Mattera <MMattera@nelsonpope.com>; Eric Mcferran <EMcferran@nelsonpope.com>; Chic Voorhis <CVoorhis@nelsonpope.com>; McCabe, Kristen <KMcCabe@rechlerequity.com>
Subject: RE: island hills Conference Call

Hi Vin,

Thank you for your detailed review of my submission regarding the proposed inclusion of other planned development traffic in the Island Hills Traffic Study. We are in agreement with all the Town's request except for the post development analyses (2031 and 2036 analyses). Nelson & Pope considers the post development analyses to be unnecessary given the comprehensive nature of the analyses already being prepared, and the fact that such analyses were not required of other major developments in the area. We are therefore humbly requesting that the Town remove post development analyses from their request.

Thank you for your consideration in this matter.

Osman Barrie, PE, PTOE, PTP

Project Manager
NELSON & POPE
Phone: 631.427.5665

obarrie@nelsonpope.com

From: Vin Corrado <Vcorrado@lkma.com>
Sent: Tuesday, September 18, 2018 12:09 PM
To: Osman Barrie <OBarrie@nelsonpope.com>
Cc: jjoyce@islipny.gov; scolgan@islipny.gov; Guy germano (gwg@germanocahill.com) <gwg@germanocahill.com>; Joe Pecora <JPecora@nelsonpope.com>; Matt Mattera <MMattera@nelsonpope.com>
Subject: RE: island hills Conference Call

Osman
We have reviewed your submission regarding the proposed inclusion of "other development" traffic in the phased traffic analysis being prepared in conjunction with the DEIS for the redevelopment of the former Island Hills Country Club. Based on these discussions and the information you provided, traffic analyses should be provided which include the Phase I traffic from Islip Pines in the no-build and build scenarios for each phase of the proposed Island Hills redevelopment. In addition, a no build and build scenario for each phase of the Island Hills development should be provided without any Islip Pines traffic. The effectiveness of mitigation measures proposed by the developer should be evaluated for both scenarios, and included in the analyses for the subsequent phase.
In addition, post-development scenarios should be provided for the projected completion year (2026) for Island Hills plus 5 years and ten years. These should include full build out of the Islip Pines development, the Ronkonkoma Hub and Island Hills, including mitigation measures from prior phases.
Ronkonkoma Hub traffic should be included in the Island Hills analyses only for Phase 6-Full Build Out, which would occur in 2026, as well as the two post-development scenarios.
For example, the following scenarios should be analyzed:
2018 Existing
2021 No Build (no development traffic, background growth only)
2021 Build Phase 1 IH
2021 Build Phase 1 IH mitigated
2022 No Build Phase 2 IH (includes IH Phase 1 and Phase 1 mitigation, additional background growth)
2022 No Build Phase 2 IH with IP (includes IH Phase 1, IH Phase 1 mitigation, and IP Phase 1)
2022 Build Phase 2 IH (includes IH Phase 1, IH Phase 2 and IH Phase 1 mitigation)
2022 Build Phase 2 IH (includes IH Phase 1, IH Phase 2, IH Phase 1 mitigation, and IP Phase 1)
IH Phases 3 through 6 should be treated the same way, with additional scenarios for IP Phase 2 in 2026 analyses with and without Ronkonkoma Hub.
Finally, full build for all projects (IH, IP, RH) for 2031 and 2026 should be provided.
If you would like, you can send me the list of proposed analysis scenarios to review. If you have any questions regarding the above please feel free to contact me.

Vincent A. Corrado, PE | Associate

L.K. McLean Associates, P.C.
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From: Osman Barrie [mailto:OBarrie@nelsonpope.com]
Sent: Tuesday, September 18, 2018 9:28 AM
To: Vin Corrado <Vcorrado@lkma.com>
Cc: jjoyce@islipny.gov; scolgan@islipny.gov; Guy germano (gwg@germanocahill.com) <gwg@germanocahill.com>; Joe Pecora <JPecora@nelsonpope.com>; Matt Mattera <MMattera@nelsonpope.com>
Subject: RE: island hills Conference Call

OK. Thanks.

Osman Barrie, PE, PTOE, PTP

Project Manager
NELSON & POPE
Phone: 631.427.5665
obarrie@nelsonpope.com

From: Vin Corrado <Vcorrado@lkma.com>
Sent: Tuesday, September 18, 2018 9:26 AM
To: Osman Barrie <OBarrie@nelsonpope.com>
Cc: jjoyce@islipny.gov; scolgan@islipny.gov; Guy germano (gwg@germanocahill.com) <gwg@germanocahill.com>; Joe Pecora <JPecora@nelsonpope.com>; Matt Mattera <MMattera@nelsonpope.com>
Subject: RE: island hills Conference Call

LKMA and TOI have agreed on our recommendation. Just waiting for the town to review the language, which I sent to them late yesterday.

Vincent A. Corrado, PE | Associate

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From: Osman Barrie [mailto:OBarrie@nelsonpope.com]
Sent: Tuesday, September 18, 2018 9:13 AM
To: Vin Corrado <Vcorrado@lkma.com>
Cc: jjoyce@islipny.gov; scolgan@islipny.gov; Guy germano (gwg@germanocahill.com) <gwg@germanocahill.com>; Joe Pecora <JPecora@nelsonpope.com>; Matt Mattera <MMattera@nelsonpope.com>
Subject: RE: island hills Conference Call

Hi Vin,

Any update on the Islip Pines information?

Thanks

Osman Barrie, PE, PTOE, PTP

Project Manager
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From: Vin Corrado <Vcorrado@lkma.com>
Sent: Thursday, September 13, 2018 10:06 AM
To: Osman Barrie <OBarrie@nelsonpope.com>
Cc: jjoyce@islipny.gov; scolgan@islipny.gov; Guy germano (gwg@germanocahill.com) <gwg@germanocahill.com>; Joe Pecora <JPecora@nelsonpope.com>; Matt Mattera <MMattera@nelsonpope.com>
Subject: RE: island hills Conference Call

Thanks Osman
I am discussing this with TOI and will inform you of our findings.
Vin

Vincent A. Corrado, PE | Associate

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LKMA

From: Osman Barrie [mailto:OBarrie@nelsonpope.com]
Sent: Wednesday, September 12, 2018 4:39 PM
To: Vin Corrado <Vcorrado@lkma.com>
Cc: jjoyce@islipny.gov; scolgan@islipny.gov; Guy germano (gwg@germanocahill.com) <gwg@germanocahill.com>; Joe Pecora <JPecora@nelsonpope.com>; Matt Mattera <MMattera@nelsonpope.com>
Subject: RE: island hills Conference Call

Hi Vinny,

Thanks for the email. I reached out to Stonefield Engineering, the engineer preparing the TIS for Islip Pines for the most up-to-date information on the project. Below is a summary of the information they provided:

- The Islip Pines project will be constructed in two (2) phases.
- PHASE 1 will be completed in 2022 (2022 Build year) and will comprise of 350 residential units, 214,660 SF of retail space and 51,218 SF of Civic space.
- PHASE 2 will be completed in 2027 (2027 Build year) and will comprise of 818,130 SF of Industrial/Research space, 200-room Hotel, 302,820 SF of Office space, and 277,140 SF of Retail space.
- Basically the project uses and size are the same as what was submitted in the 2013 TIS but now broken into two phases.

The Island Hills project will be constructed in 6 phases with Build years of 2021, 2022, 2023, 2024, 2025 and 2026. Based on this phasing we will include Phase I of the Islip Pines project as a Planned Project in Phase 2 (2022), Phase 3(2023), Phase 4(2024), Phase 5(2025) and Phase 6(2026). Phase 2 of the Islip Pines project will not be included in our TIS since its completion date is beyond our 2026 final build out year.

Please let me know what you think.

Thanks

Osman Barrie, PE, PTOE, PTP

Project Manager
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obarrie@nelsonpope.com

From: Vin Corrado <Vcorrado@lkma.com>
Sent: Tuesday, September 11, 2018 11:34 AM
To: Osman Barrie <OBarrie@nelsonpope.com>
Cc: jjoyce@islipny.gov; scolgan@islipny.gov
Subject: FW: island hills Conference Call

Osman

TOI requested that I respond to you regarding below from Guy Germano. As I expressed to the town, the proposed approach to the Hub is reasonable, especially because the overlap between the two projects will be limited due to their separation. The Hub may attract traffic from Island Hills and the rest of Sayville, and new residents at the Hub may be attracted to downtown Sayville and thus impact study roadways, but impacts over distance are difficult to quantify. Assigning some traffic to the full build is fine, and the background traffic growth rates will also pertain. Just provide a discussion of your decision.

Islip Pines is closer, and should be more closely examined in the context of the Island Hills analysis. Updated project phasing needs to be discussed, and realistically reflected. The narrative should provide a justification of your choices and a discussion of the differences with respect to trip

generation.
Obviously whichever you decide to go with, the old or yet to be submitted information, you need to be prepared to revisit if that application changes drastically, but we will recognize how the process took place, and be flexible in our review as appropriate.
If you want to run the narrative by me in advance, feel free.
Vin

Vincent A. Corrado, PE | Associate

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LKMA

From: JESSICA JOYCE [mailto:JJOYCE@islipny.gov]
Sent: Wednesday, September 05, 2018 1:01 PM
To: Vin Corrado <Vcorrado@lkma.com>
Cc: SEAN COLGAN <SCOLGAN@islipny.gov>
Subject: FW: island hills Conference Call

Hi Vin. Guy Germano has asked for a conference call this afternoon to discuss the below traffic issues. I am forwarding this to you for your review. When you have the time, please let me know your thoughts. Thanks, Jess

---

From: Guy W. Germano [mailto:gwg@GermanoCahill.com]
Sent: Wednesday, September 05, 2018 12:33 PM
To: RON MEYER
Subject: island hills Conference Call

We are in the process of finalizing our approach/methodology for including other planned projects (Ronkonkoma Hub & Islip Pines) in the Island Hills TIS. We would like you to discuss the following with Ron Meyer for his approval or schedule a call/meeting for us to discuss with him directly.

Ronkonkoma Hub
It is our understanding that Phase 1 is currently under construction and the remainder of the project will be completed in 2026. The TIS conducted for Ronkonkoma Hub does not provide trip generation estimates or analysis by construction phases, it simply considers the overall project. Therefore, we do not know what components of the project are included in Phase 1. Since the Hub is being built concurrently, and the study we were provided does not include phasing, we feel that based on the overall volumes of the completed project there will be minimal impact/overlap with the study intersections for Island Hills. Therefore, we feel that it is appropriate to include to the Ronkonkoma Hub as an other planned project in the Island Hills TIS only for Phase 6-Full Build Out, which would occur in 2026.

Islip Pines

There is an existing TIS that was completed in 2013 and a TIS that is currently being prepared with a different mix of uses and SF. If we are to utilize the newer configuration in our report we do not need to wait for the report to be completed and would only require the following info from the Town or Stonefield Engineering:

1. The land uses and sizes of the proposed Islip Pines project
2. The updated trip generation estimates
3. The updated trip distribution (Percent distribution figure and project volume figures- AM, PM, Saturday)
4. Their proposed Build Year (project completion)

Ron had previously suggested that we utilize the old study for inclusion in the Island Hills TIS which was completed in 2013 (Existing Condition) and Build year of 2021 (8 year build out). If this is the preferred approach we would like him to provide a revised estimated Build year so we can realistically incorporate it into our report. Following the same construction schedule would once again bring us to a Build year of 2026, which means we would only include this project in the Island Hill TIS Phase 6-Full Build Out.

Guy W. Germano, Esq.
Germano & Cahill, P.C.
Of Counsel to Meyer, Suozzi, English & Klein, P.C.
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(631) 588-2550 (facsimile)

Appendix F-8
Traffic Mitigation Schedule for Alternatives

RECHLER EQUITY PARTNERS
Greybarn at Island Hills
Town of Islip, New York
Sayville, New York 11782

Date: 05/15/20
By: JMD, OB
Issue No. 5
Rev: 07/27/20

Traffic Impact Mitigation Strategy by Phase

Proposed Project Phases

Phase	No Build	Ph. 1	Ph. 2	Ph. 3	Ph.4	Ph. 5	Ph. 6
Build Year	Current	2021	2022	2023	2024	2025	2026
Growth Rate	Table 19	1.8%	2.4%	3.0%	3.6%	4.3%	4.9%
Prop. Action	Table 20	138 units	360 units	678 units	967 units	1,180units	1,365 units

Site Development Schedule **Table 1-6a**

Phase	Micro	1-Bdrm.	2-Bdrm.	Total	Duration	Proposed Project Phasing Timeline
1	16	62	60	138	16 mo.'s	**No Build** / **Phase 1**
2		111	111	222	16 mo.'s	**Phase 2**
3		158	160	318	20 mo.'s	**Phase 3**
4		144	145	289	20 mo.'s	**Phase 4**
5	16	100	97	213	16 mo.'s	**Phase 5**
6		94	91	185	16 mo.'s	**Phase 6**
Total	**32**	**669**	**664**	**1,365**		

Traffic Peak VPH by Proposed Project Phase

Town Standards for achieving No Significant Impact - Summary		**Ph. 1**	**Ph. 2**	**Ph. 3**	**Ph. 4**	**Ph. 5**	**Ph. 6**
No increase in delay above Town criteria with Mitigation	Peak VPH	VPH	VPH	VPH	VPH	VPH	VPH
Maintain "Operational Effectiveness" with Mitigtion	AM	50	130	244	348	425	492
Maintain LOS equivalent to "No Build" over time	PM	61	159	299	426	520	601
Below Town Subdivison & Land Development Reg's Criteria	Sat	61	159	299	426	520	601
for Significant Impacts at Unsignalized & Signalized Intersections							

Traffic Impact Mitigation by Project Phase

Proposed Traffic Mitigation Improvements		**Ph. 1**	**Ph. 2**	**Ph. 3**	**Ph. 4**	**Ph. 5**	**Ph. 6**
No Build effectiveness will be mantained		Yes	Yes	Yes	yes **(1)**	Yes **(1)**	Yes **(1)**
Minor signal adjustments and calibration		Yes	Yes	Yes	Yes	Yes	Yes
Minor increases in delay			Yes	Yes	Yes	Yes	Yes
Lakeland Avenue at NYS Route 27 North Service Road (Fig. 28)							
Two exclusive thru and right turn lanes		NA	NA	NA	Yes	p/o Ph. 4	p/o Ph. 4
Minor Signal Adjustments on NB LT phase		NA	NA	NA	Yes	p/o Ph. 4	p/o Ph. 4
Lakeland Avenue at Tariff Street/Johnson Avenue (Fig. 29)							
Widen NB Approach to provide exclusive LT LT Lane						Yes	p/o Ph. 5
Lakeland Avenue Corridor							
Widening between Eastover Road and 11th Street **(Fig. 30)**		NA	NA	NA	NA	NA	Yes
Elimination of Intersection with Chester Road		NA	NA	NA	NA	NA	Yes
Reduce NB Queues at Gibbons Court		NA	NA	NA	NA	NA	Yes
Eliminate congestion and safety issues at Chester Road		NA	NA	NA	NA	NA	Yes
Significant Impact on Intersection within and around Study Area							
(1) With Proposed Mitigation Strategies by Phase		**No**	**No**	**No**	**No (1)**	**No (1)**	**No (1)**

Arterial Roadway Level of Service (LOS) and Speed (mph) by Project Phase

Arterial		No Build		Ph. 1		Ph. 2		Ph. 3		Ph. 3 (1)	
Lakeland/RR -NB	AM	C	18.9	C	18.8	C	18.6	C	18.4	C	18.4
	PM	C	18.1	C	18.0	D	17.9	D	17.6	D	17.6
Lakeland/RR -SB	AM	C	20.1	C	19.9	C	19.8	C	19.7	C	19.7
	PM	D	16.6	D	16.3	D	15.9	D	15.2	D	15.9
Reference Table No.				25/26		29/30		31/32			

Arterial Roadway Level of Service (LOS) and Speed (mph) by Project Phase

Arterial		No Build		Ph. 4		Ph. 4 (1)		Ph. 5		Ph. 5 (1)		Ph. 6		Ph. 6 (1)	
Lakeland/RR -NB	AM	C	18.8	D	18.0	C	18.3	D	17.9	C	18.2	D	17.7	C	18.5
	PM	D	18.0	D	17.3	D	18.0	D	16.9	D	17.8	D	15.8	D	17.9
Lakeland/RR -SB	AM	C	20.1	C	19.6	C	19.9	C	19.5	C	19.8	C	19.5	C	19.6
	PM	D	16.2	D	14.7	D	17.3	D	14.4	D	16.7	D	13.8	D	16.2
Reference Table No.				34/35				37/38				37/38		40/41	

ITE Trip Rates for Alternatives

Use	AM	PM	Sat
SF Homes	0.75	1.01	1.01
MF Units	0.46	0.56	0.54
Senior	0.46	0.54	0.23
Ind'l Park	0.40	0.40	0.44
Cong Care	0.07	0.18	0.18
Assistd Liv	0.19	0.26	0.27
Nurs Home	0.17	0.22	0.14

Traffic Peak VPH by Alternative

Program	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 7	Alt. 8
SF Homes		99	39	59			
MF Units			1,000	122	800	1,365	
Senior					59		
Ind'l Park sf							1,000,000
Cong Care					400		
Aisstd Liv					150		
Nurs Home					120		
Peak VPH	No Action	VPH	VPH	VPH	VPH	VPH	VPH
AM		74	492	103	472	492	400
PM		100	601	129	617	601	400
Sat		100	591	134	576	601	440
Comparison		**>Ph.1<Ph.2**	**Ph. 6**	**>Ph.1<Ph.2**	**Ph. 6**	**Ph. 6**	**Ph. 4**
Yes/No	**No**	**No**	**No**	**No**	**No**	**No**	**No.**

Comparison To Traffic in **Phase** of Proposed Project
Meets Town "Delay Criteria" for **Significant Impact**

Lakeland Ave at NYS Rt 27 No. Service Road Fig. 28

Lakeland Ave at Tariff St./Johnson Ave. Fig. 29

Lakeland Ave Eastover / 11th St. Fig. 30