

III.B Traffic

Extensive mitigation is proposed to accommodate the project and the associated site generated traffic volumes, which will result in an excellent roadway system to accommodate the proposed logistics center development and existing traffic. The mitigation measures proposed include the reconstruction of Pugsley Road, improvements proposed at the NY 312/Pugsley Road intersection, and signal improvements to the nearby interchange with I-84 at NY 312.

I. Overview

This overview provides a summary of existing conditions, future conditions without and with the proposed development, as well as without and with another a previously approved development known as Crossroads 312 which has not been constructed. While logistics centers typically generate site traffic out of phase with the existing peak traffic volumes along the area roadways, sensitivity analyses have been prepared at the request of the Town Planning Consultant to conservatively assess conditions as if the peak site generated traffic occurred during the same hours as the existing traffic. Regional access to the site would be primarily via I-84, which intersects NY 312 at interchange I9, and is expected to be utilized by the vast majority of the site related traffic. Secondary regional access is provided via NY 6. The site's proximity to the Metro-North Southeast train station provides an excellent opportunity for potential private jitney service to the site.

Extensive mitigation is proposed to accommodate the project and the associated site generated traffic volumes. The reconstruction of Pugsley Road and the improvements proposed at the NY 312/Pugsley Road intersection, together with the signal and potential lane use improvements to the nearby interchange with I-84 at NY 312, will provide an excellent roadway system to accommodate the proposed logistics center development. While all four buildings may not be constructed concurrently, depending on market conditions, all of the proposed intersection improvements will

be completed in association with the construction of the first building(s), which will benefit other motorists traveling through the study area.

Intersection capacity analyses computed based on the Build Volumes with the proposed improvements indicate that the area intersection movements will generally operate at the same levels of service as projected for the No-Build Volumes.

In order to evaluate the changes in traffic associated with the proposed development, the following intersections have been analyzed as directed by the Town's Planning Consultant:

- US 6 & NY 312/NY 312 Extension
- NY 312 & Prospect Hill Road
- NY 312 & Pugsley Road
- NY 312 & Caremount Driveway
- NY 312 & Interstate 84 Eastbound Ramps with Independent Way
- NY 312 & Interstate 84 Westbound Ramps
- NY 312 & International Boulevard

Traffic counts were performed at the studied intersections to quantify and analyze existing peak hour volumes as well as to establish base conditions for projecting future operations. The counts included pedestrian activities and truck traffic. The traffic counts were conducted during a typical weekday when schools were in session from 7:00 – 9:00 AM and 4:00 – 6:00 PM and on a Saturday from 12:00 – 2:00 PM. The peak hours of the existing traffic were determined based on the traffic counts, and intersection capacity analyses have been computed based on existing volumes, intersection controls and geometric conditions. The results are summarized on detailed tables described later in this section.

In order to project future traffic increases to the design year 2023, which represents the anticipated completion of the four proposed buildings, the existing volumes were

increased by a general growth rate of 1% per year compounded annually. Based on discussions with the Town's Planning Consultant, the Applicant incorporated the traffic volumes associated with the Prospect Hill development and Crossroads 312 development, as well as the reopening of the Prospect Hill Road Bridge over the Metro-North railroad tracks.

Additionally, the Applicant incorporated the traffic associated with the subject property's previous approval of 143 single family homes, which is approximately 110 trips during the Peak AM hour and 145 trips during the Peak PM hour on weekdays. The resulting volumes are known as 2023 No-Build volumes. While the previous application approved by the Town also acknowledged and anticipated the planned 237,000 s.f. of office/commercial space, the traffic related to the office/commercial uses have not been included in this study for a conservative analysis since Site Plan Approval had not been obtained for the planned office/commercial space. It is noted that the 1992 DEIS prepared for the site projected that the residential and office components would generate 539 trips during the peak AM hour and 565 trips during the peak PM hour on weekdays, which are significantly higher volumes when compared to the volumes associated with the current application.

An alternative No-Build analysis has been prepared at the request of the Town Planning Consultant to assess future conditions without the roadway/intersection improvements associated with the Crossroads 312 project. The alternative No-Build also does not include the volumes associated with the Crossroads 312 project.

Pugsley Road provides access to the site from NY 312. The road is narrow and the majority of the road is paved until just south of the intersections with Zimmer Road and Barrett Road. There are no pavement markings on the existing road and the pavement is in poor condition. North of Barrett Road, the narrow dirt road portion of Pugsley Road changes name to Fields Corner Road, which continues as a relatively narrow dirt road of varying widths to the Patterson Town line, where it changes name to Fields Lane and continues primarily as a dirt road until it intersects Fair Street.

Pugsley Road and Fields Corner Road are seasonally maintained roads and are closed annually from December 1 to April 1. Since the existing Town roads are relatively narrow and in poor condition and thus not suitable for the proposed use, the Applicant will need to reconstruct both Pugsley Road and Barrett Road to provide proper lane widths, grades and turning radii. The reconstruction will include the construction of wider roads with a thicker road section. The Pugsley Road portion to be reconstructed is 0.8 mile from Route 312 to Barrett Road. The Barrett Road reconstruction is 0.3 mile from Pugsley Road to the currently proposed cul-de-sac. Accordingly, while nearly all development sites in the Town can be accessed simply by connecting a driveway to the existing public road, the Applicant must construct more than a mile of new roads to access the subject development.

Barrett Road is proposed to become a private road as it will only serve the property, and as a private road will save the Town the cost of maintenance, which will become the responsibility of the Applicant. At the request of the Town of Patterson, Fields Corner Road will be closed at the Patterson Town line, with gravel turnarounds provided, to restrict any trucks or other traffic from accessing the site directly from the Town of Patterson.

NYSDOT restricts large trucks known as Special Dimension Vehicles, including 53 foot trailers, to travel within one mile of an interstate ramp, as well as along specially designated truck access highways. The southern proposed site access driveway serving two buildings would be within one mile of the farthest I-84 ramp, the I-84 westbound ramps. In association with the project, Pugsley Road would be improved to provide 12 foot lanes and the proposed improvements to the Route 312/Pugsley Road intersection and the Pugsley Road/Barrett Road intersection have been designed to accommodate a WB-67 design (Special Dimension Vehicle) with a 53' trailer. NYSDOT recently advised that Pugsley Road will be designated as a truck access highway upon completion of the proposed road improvements which will provide 12' wide travel lanes and appropriate turning radii. NYSDOT confirmed that Barrett Road would not need to be designated as a truck access highway since it is

proposed to be a private road and the NYSDOT Special Dimension Vehicles regulations do not apply to private roads.

The projected traffic associated with the proposed development is based on information published by the Institute of Transportation Engineers (ITE) in its publication “Trip Generation Manual, 9th Edition.” The proposed logistics center buildings are anticipated to be state of the art facilities and may include high-cube highly automated uses which have fewer employees compared to a traditional warehouse. Based on comments from the Town’s traffic consultant, this study analyzes the proposed buildings as traditional warehouses on a square footage basis to provide a conservative analysis. The ITE trip generation associated with the high-cube warehouse land use with the same sized buildings during the peak weekday AM, weekday PM, and Saturday midday hours are approximately 124, 135 and 146 trips, respectively. The ITE trips associated with general warehouse on a square footage basis which have been analyzed as directed by the Town are 337, 360 and 146 vehicles during the same three peak hours.

During the peak weekday AM, weekday PM, and Saturday midday hours, the development will result in approximately 227, 215 and 10 net additional trips, respectively with the conservatively projected general warehouse trips as compared to the 143 residential units. The driveway volumes for the warehouse use are conservative as previously mentioned since high-cube warehouse trip generation is substantially less. Based on the high-cube warehouse land use compared to the 143 residential units, the proposed development would generate a net of 14 additional trips during the peak AM hour, 52 fewer trips during the peak PM hour and 10 additional trips during the peak Saturday hour. In addition, no credit has been applied for potential jitney shuttle service between the site and the Southeast train station.

As previously mentioned, the Applicant incorporated the traffic associated with the subject property’s previous approval of 143 single family homes in the 2023 No-Build volumes. While the previous application approved by the Town also analyzed and

anticipated the planned 237,000 s.f. of office/commercial space, the traffic related to the office/commercial uses have not been included in this study for a conservative analysis since Site Plan Approval had not been obtained for the planned office/commercial space. It is noted that the 1992 DEIS prepared for the site projected that the residential and office components would generate 539 trips during the peak AM hour and 565 trips during the peak PM hour on weekdays. Accordingly, the currently proposed development will generate approximately 202 and 205 net fewer trips than projected in the 1992 DEIS during the peak weekday AM and PM peak hours, respectively, with the conservative general warehouse land use, which is a significant reduction in peak highway hour site generated traffic volumes. When the 1992 DEIS volumes are compared to the ITE high-cube warehouse volumes, the net reductions are 415 trips during the peak AM hour and 430 trips during the peak PM hour.

An alternative No-Build and Build analysis scenario has been prepared to include the proposed site development traffic, but without the Crossroads 312 traffic volumes and the associated traffic improvements proposed by Crossroads 312 for this scenario.

Two additional even more conservative (worst case) alternative scenarios were also analyzed at the request of the Town Planning Consultant as if the peak hours of the site generated traffic occurred during the same peak hours of the adjacent roadway traffic. The scenarios are identified as Sensitivity Analysis and are essentially the same, except when related to the Crossroads 312 development. The first sensitivity analysis includes Crossroads 312 and the second sensitivity analysis does not include Crossroads 312. Although the trip generation utilized in the Build condition provided a conservative analysis as previously mentioned by basing the traffic generation on general warehouse space as suggested by the Town Planning Consultant, an additional very conservative analysis has been prepared to assess the conditions as if the peak hour of the generator occurs during the peak weekday roadway hour, rather than outside of the peak hours of the roadway as typically occurs with warehouse

developments. The development volumes under this analysis are 472 and 506 peak hour trips, being approximately 362 and 361 net additional peak hour trips based on this extremely conservative superimposed peak hour trips sensitivity analysis, as compared to the 143 residential units during the peak weekday AM and weekday PM hours, respectively. These volumes are substantially higher than anticipated by the Applicant. As previously mentioned, the traffic related to the previously proposed office/commercial uses have not been included in this study since, while analyzed and anticipated, the office/commercial uses had not received Site Plan Approval. The 1992 DEIS prepared for the site projected that the residential and office campus components would generate 539 trips during the peak AM hour and 565 trips during the peak PM hour on weekdays. Accordingly, even with this very conservative sensitivity analysis, the currently proposed development would generate approximately 67 and 59 net fewer trips than projected in the 1992 DEIS during the peak weekday AM and PM peak hours, respectively.

Extensive mitigation is proposed to accommodate the project and the associated site generated traffic volumes. The reconstruction of Pugsley Road and the improvements proposed at the NY 312/Pugsley Road intersection, together with the signal and potential lane use improvements to the nearby interchange with I-84 at NY 312, will provide an excellent roadway system to accommodate the proposed logistics center development.

A summary of the project mitigation is provided below.

a. Gate at Patterson Town Line

Pugsley Road and Fields Corner Road are currently closed in the Town of Southeast from December 1 to April 1. As discussed during a meeting with the Patterson Town Supervisor, a permanent closure of Fields Corner Road is proposed by providing a gate at the Town line, as shown on Figure III.B-1. The gate would have a Knox lock which could be opened in the event of an emergency.

Truck turnarounds and appropriate signage are proposed in the Town of Southeast and the Town of Patterson. The existing volumes utilizing the roads in Southeast during the other months are typically less than 15 vehicles per hour, therefore relatively few vehicles will be diverted to other locations, including I-84 and Route 6.

b. Pugsley Road & Barrett Road Improvements

Pugsley Road, a Town road, is currently a narrow, partially paved and partially dirt road which extends to Barrett Road. North of Barrett Road, the Pugsley Road name changes to Fields Corner Road, which continues as a gravel road to the Patterson Town line, where the name changes again to Fields Lane. Barrett Road is currently a Town Road which is proposed to be a private road.

Since the existing Town roads are relatively narrow and in poor condition and thus not suitable for the proposed use, the Applicant will need to reconstruct both Pugsley Road and Barrett Road to provide proper lane widths, grades and turning radii. The reconstruction will include the construction of wider roads with a thicker road section. At the request of the Town, a portion of Fields Corner Road immediately north of Barrett Road will also be improved to eliminate existing curves in the Pugsley Road/ Barrett Road/ Fields Corner Road intersections. A gravel road will be provided along the improved Fields Corner Road.

The Pugsley Road portion to be reconstructed is 0.8 mile from Route 312 to Barrett Road. The Barrett Road reconstruction is 0.3 mile from Pugsley Road to the currently proposed cul-de-sac. Accordingly, while nearly all development sites in the Town can be accessed simply by connecting a driveway to the existing public road, the Applicant must construct more than a mile of new roads to access the subject development.

NYSDOT restricts large trucks known as Special Dimension Vehicles, including

53 foot trailers, to travel within one mile of an interstate ramp, as well as along specially designated truck access highways. The southern proposed site access driveway serving two buildings would be within one mile of the farthest I-84 ramp, the I-84 westbound ramps. In association with the project, Pugsley Road and Barrett Road would be improved/reconstructed to provide 12 foot lanes.

The proposed improvements to the NY 312/Pugsley Road intersection, and the Pugsley Road/Barrett Road intersection have been designed to accommodate a WB-67 design (Special Dimension Vehicle) with a 53' trailer. The Applicant has been coordinating with NYSDOT, who as advised that Pugsley Road will be designated as a truck access highway upon completion of the proposed improvements. Barrett Road will not need to be designated as a truck access highway since it is proposed to be a private road.

c. NY 312/Pugsley Road Improvements

As part of the proposed development, the Applicant initially proposed to construct a new traffic signal at the intersection of NY 312 and Pugsley Road and an eastbound left turn lane and a westbound right turn lane along NY 312. Pugsley Road was proposed to be widened to provide dual left turns with a shared right turn onto NY 312. NY 312 was to be modified to receive the dual left turns from Pugsley Road. The improvements are shown on Figure III.B-2.

As a result of three meetings with NYSDOT and additional analyses of traffic and geometric considerations, a modern roundabout is the preferred traffic control for the intersection, rather than the signalized intersection. The roundabout is shown on Figure III.B-3. The proposed roundabout would provide two entry/exit lanes for the eastbound NY 312 approach and two entry/exit lanes with a right turn bypass would be provided for the westbound NY 312 approach. Along the Pugsley Road approach two entry lanes and one exit lane would be provided. A

mountable section in the center island would accommodate turning maneuvers from larger vehicles.

Projected operations with the roundabout indicate the intersection would operate at level of service C or better with the roundabout alternative, with the delays for certain movements being shorter than with a signalized intersection. With respect to the capacity of traffic movement through the intersection, the roundabout accommodates the projected traffic volumes well within the capacity while the signalized intersection operates closer to capacity, which is less desirable. Accordingly, the roundabout mitigation is preferred by the Applicant as compared to the signalized intersection with turn lanes improvements and is expected to remain preferred by NYSDOT upon its detailed review of the projected traffic operations.

In addition to the improved traffic flow, modern roundabouts typically experience substantially fewer accidents than signalized intersections, and the accidents that do occur typically have significantly less injuries and vehicle damage due primarily to the low travel speeds associated with roundabouts. There has been a proliferation of modern roundabouts throughout Europe and many other countries throughout the world over the past 25 years and roundabouts are becoming more common throughout the United States over the past decade, and is now the NYSDOT preferred intersection control.

d. Additional Intersection Improvements

NYSDOT intends to coordinate the three existing traffic signals along NY 312 at the I-84 ramps and International Boulevard. The NYSDOT improvements will enhance traffic flow between the intersections.

Vehicles exiting the Caremount Medical driveway experience peak hour delays when exiting onto NY 312. NYSDOT previously determined in association with

the Crossroads 312 project that a traffic signal was not warranted based on the site driveway volumes. While not reflected in this analysis, Caremount Medical has approached the Town to expand its parking lot and construct a second site driveway through Town property which would provide access to Independent Way, which provides access to the traffic signal at NY 312.

The improvements proposed by the Applicant at additional intersections vary depending on the various scenarios considered as follows:

1. With Crossroads 312 Development

Traffic signal timing improvements are also proposed at the intersection of NY 312 and Independent Way. The Applicant will coordinate with NYSDOT, who owns and maintains the existing traffic signal at Independent Way, to recommend the signal timing improvement.

2. Without Crossroads 312 Development

The Applicant would be willing to provide certain improvements proposed by the Crossroads 312 development in the event that development is not constructed.

At the intersection of NY 312 & Independent Way/I-84 Eastbound Ramps, the Applicant would restripe the southbound approach for separate left, thru, and right turn lanes; restripe the northbound approach to provide two left turn lanes, one thru lane, and one right turn lane; provide no right turns on red at the eastbound, northbound, and southbound approaches; and revise the traffic signal timing plan.

At the intersection of NY 312 & I-84 Westbound Ramps the Applicant would provide no right turns on red at the eastbound and southbound approaches; and revise the traffic signal timing.

At the intersection of NY 312 & International Boulevard the Applicant would revise the traffic signal timing. The Applicant will coordinate with the NYSDOT, who owns and maintains the existing traffic signals at the intersections, to recommend the improvements.

2. Existing Conditions

a. Area Roadways & Intersections

JMC performed field reconnaissance at the site and adjoining roadway network to gather existing conditions data supplemented with record information provided by Google Earth to determine lane widths, striping, horizontal and vertical alignments, signs, speed limits, sidewalks, curbing, etc. Physical inventories of the study area intersections are included in Appendix B-1.

Interstate 84 provides regional access to the proposed development and generally provides two lanes in each direction along the mainline.

NY 312 is under the jurisdiction of the New York State Department of Transportation (NYSDOT). It is generally an east-west roadway which connects to US 6 in the west and NY 22 in the east. It generally provides one travel lane in each direction and widens to provide additional lanes at the analyzed signalized intersections. Within the study area, NY 312 has a posted speed limit of 45 mph.

Pugsley Road is a narrow road which provides access to the site from NY 312. The majority of the road is paved until just south of the intersections with Zimmer Road and Barrett Road. There are no pavement markings on the existing road

and the pavement is in poor condition. North of Barrett Road, the dirt road portion of Pugsley Road changes name to Fields Corner Road, which continues as a relatively narrow dirt road of varying widths to the Patterson Town line, where it changes name to Fields Lane and continues primarily as a dirt road until it intersects Fair Street. Pugsley Road and Fields Corner Road are seasonally maintained roads and are closed annually from December 1 to April 1.

US 6 is generally an east-west roadway under the jurisdiction of the NYSDOT. It provides one travel in each direction within the study area and widens to provide additional lanes at various locations. Within the study area, US 6 has a posted speed limit of 55 mph.

Prospect Hill Road, Pugsley Road, Independent Way, and International Boulevard are Town roadways. These roadways generally provide one travel lane in each direction and intersect with NY 312. The roadways have a posted speed limit of 30 mph.

In order to evaluate the changes in traffic associated with the proposed development, the following intersections have been analyzed as directed by the Town's Planning Consultant:

1. US 6 & NY 312/NY 312 Extension
2. NY 312 & Prospect Hill Road
3. NY 312 & Pugsley Road
4. NY 312 & Caremount Driveway
5. NY 312 & Interstate 84 Eastbound Ramps with Independent Way
6. NY 312 & Interstate 84 Westbound Ramps
7. NY 312 & International Boulevard

At the intersection of US 6 & NY 312, the US 6 eastbound approach provides an 11 foot wide, 390 foot long left turn lane and an 11 foot wide shared thru/right

lane. US 6 westbound provides an 11 foot wide, 105 foot long left turn lane; a 12 foot wide thru lane; and a 13 foot wide, 260 foot long right turn lane. The southbound approach of NY 312 provides an 11 foot wide, 180 foot long shared left/thru lane and a 12 foot wide right lane. The northbound approach of NY 312 Extension provides a single 12 foot wide travel lane with shared turning movements. The intersection operates under the control of an actuated traffic signal.

Prospect Hill Road intersects NY 312 at an unsignalized intersection. NY 312 northbound provides an 12 foot wide shared thru/right turn lane while the southbound provides an 11 foot wide, 190 foot long left turn lane and a 12 foot wide thru lane. Prospect Hill Road is under stop sign control and provides a single 11 foot wide approach lane with shared turning movements.

At the NY 312 and Pugsley Road intersection, NY 312 provides a single 12 foot wide lane in each direction with shared turning movements. Pugsley Road is under stop sign control and provides a single 9 foot wide approach lane with shared turning movements.

Caremount Driveway intersects NY 312 at an unsignalized intersection. NY 312 eastbound approach provides a 12 foot wide thru lane with shared right turning movements. NY 312 westbound provides a separate 12 foot wide, 70 foot long left turn lane in addition to a thru lane. The NY 312 westbound thru lane is in a transition from 2 to 1 lanes at this intersection; however, the striping is wide enough to accommodate two 10 foot wide lanes so this study analyses it as two thru lanes in the westbound direction. The Caremount driveway operates under stop sign control and provides a single 13 foot wide travel lane with shared turning movements.

Interstate 84 eastbound ramps intersect NY 312 at an actuated traffic signal. The NY 312 eastbound approach provides 12 foot wide, 360 foot long dual left turn

lanes; a single 12 foot wide thru lane; and a 12 foot wide, 240 foot long right turn lane. NY 312 westbound provides 12 foot wide, 190 foot long dual left turn lanes and two 12 foot wide thru lanes with shared right turns. The I-84 eastbound ramps provide an 11 foot wide, 320 foot long left turn lane and two 12 foot wide thru lanes with shared right turns. The Independent Way northbound approach provides a 12 foot wide, 315 foot long left turn lane; two 12 foot wide thru lanes with shared left turns; and a 12 foot wide 315 foot long right turn lane.

The intersection of NY 312 and the Interstate 84 westbound ramps is controlled by an actuated traffic signal. The westbound ramps provide a 12 foot wide, 100 foot long left turn lane and a 12 foot wide, right turn lane. NY 312 northbound provides a separate 12 foot wide, 325 foot long left turn lane and a single 12 foot wide, thru lane. NY 312 southbound provides a single 11 foot wide thru lane as well as a separate 12 foot wide, 235 foot long right turn lane.

International Boulevard intersects NY 312 at an actuated traffic signal. NY 312 northbound provides 12 foot wide left turn lane and a 12 foot wide thru/right lane. NY 312 southbound provides a 12 foot wide thru lane with shared turning movements. International Boulevard provides a 12 foot wide thru lane with shared left turn movements as well as an 11 foot wide, 355 foot long right turn lane. The fourth leg of this intersection is served by a 10 foot wide driveway with shared turning movements.

b. Existing Traffic Volumes

Traffic counts were performed at the studied intersections to quantify and analyze existing peak hour volumes as well as to establish base conditions for projecting future operations. The counts included pedestrian activities and truck traffic and were conducted on typical days when schools were in session.

The traffic counts were conducted from 7:00 – 9:00 AM and 4:00 – 6:00 PM on Wednesday, May 24, 2017 for all the studied intersections except for the Pugsley

Road, Caremount Driveway and International Boulevard intersections. The Pugsley Road intersection was counted from 7:00 AM – 7:00 PM on Tuesday, May 23, 2017. Additionally, all the studied intersections were counted from 11:00 AM – 2:00 PM on Saturday, May 20, 2017 except for the Caremount Driveway and International Boulevard intersections. Traffic counts were conducted from 7:00 – 9:00 AM and 4:00 – 6:00 PM on Wednesday, September 13, 2017 at the Caremount driveway and International Boulevard intersections based on discussions with the Town's traffic consultant. The International Boulevard intersection was also counted from 12:00 – 2:00 PM on Saturday, September 16, 2017 and the Caremount Driveway intersection was also counted from 12:00 – 2:00 PM on Saturday, January 6, 2018. The peak hour volumes occurred between 7:30-8:30 AM during the weekday morning, 5:00-6:00 PM during the weekday afternoon, and 12:15-1:15 during the peak Saturday hour. The intersection traffic count data is included in Appendix B-I. The peak hour volumes from the traffic counts at the intersections were balanced as necessary between intersections. The peak hour volumes are shown on Figures 1 thru 3 "2017 Existing Volumes". All figures are included in Appendix B-I.

c. Intersection Analysis Methodology

The intersections have been analyzed based on the methodologies of the Highway Capacity Manual, 6th Edition, utilizing Synchro software. Information derived from the manual relative to the level of service criteria is provided below.

1. Level-of-Service Criteria for Signalized Intersections

Levels of Service (LOS) for signalized intersections are defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during ideal conditions: in the absence

of traffic control, in the absence of geometric delay, in the absence of any incidents, and when there are no other vehicles on the road. Only the portion of total delay attributed to the control facility is quantified. This delay is called control delay. Control delay includes the delays of initial deceleration, move-up time in the queue, stops, and reacceleration. Specifically, LOS criteria for traffic signals are conservatively stated in terms of the average control delay per vehicle for a peak 15-minute analysis period within the peak hour analyzed. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the volume/capacity (v/c) ratio for the lane group in question.

LOS A describes operations with very low control delay, up to 10 seconds per vehicle. This level of services occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LOS B describes operations with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both.

LOS C describes operations with control delay greater than 20 and up to 35 seconds per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both.

LOS D describes operations with control delay greater than 35 and up to 55 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines.

LOS E describes operations with control delay greater than 55 and up to 80

seconds per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with control delay greater than 80 seconds per vehicle and/or the arrival flow rates exceed the capacity of the intersection. It will also occur at high v/c ratios below 1.0 with many individual cycle failures.

The LOS criteria for signalized intersections are presented below.

Table III.B-1

Signalized Level of Service Criteria		
Control Delay (Seconds/Vehicle)	LOS by Volume-to-Capacity Ratio	
	v/c ≤ 1.0	v/c > 1.0
≤10	A	F
>10 and ≤20	B	F
>20 and ≤35	C	F
>35 and ≤55	D	F
>55 and ≤80	E	F
>80	F	F

2. Level of Service for Unsignalized Intersections

The Levels of Service (LOS) for Two Way Stop Control (TWSC) and All Way Stop Control (AWSC) intersections are determined by the computed or measured control delay and are defined for each minor movement. LOS is not defined for the intersection as a whole for TWSC intersections. LOS criteria are presented below.

Table III.B-2

Unsignalized Level of Service Criteria		
Control Delay (Seconds/Vehicle)	LOS by Volume-to-Capacity Ratio	
	v/c ≤ 1.0	v/c > 1.0
≤10	A	F
>10 and ≤15	B	F
>15 and ≤25	C	F
>25 and ≤35	D	F
>35 and ≤50	E	F
>50	F	F

If the volume-to-capacity (v/c) is greater than 1.0, the LOS is considered an F, even if the delays are lower than 50 seconds.

The LOS criteria for unsignalized intersections are somewhat different than the criteria used for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. Driver behavior considerations combine to make delays at signalized intersections less onerous than delays at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, whereas drivers on the minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at an unsignalized intersections versus that at signalized intersections. For these reasons, it is considered that the control delay threshold for any given LOS would be less for an unsignalized intersection than it would be for a signalized intersection.

d. Existing Operations

The intersection capacity analyses based on existing volumes and conditions are shown on Table III.B-3. The specific volume/capacity ratios, average delay per vehicle in seconds and the associated levels of service are summarized for each lane group, the approach as well as the overall intersection as applicable on the table.

During the peak weekday AM hour, the Pugsley Road approach operates at a level of service E. At the intersection of NY 312 & Independent Way, the eastbound left turn lane, westbound left turn lane, northbound left turn lane, northbound left/thru lane, and southbound left turn lane operate at a level of service E. All other movements at the studied intersections operate at a level of service D or better during the peak weekday AM hour.

During the peak weekday PM hour, the Pugsley Road approach to its intersection with NY 312 operates at a level of service E. At the intersection of NY 312 & I-84 eastbound ramps/Independent Way, the eastbound left turn lane, northbound left turn lane, and southbound left turn operate at a level of service E. All other movements at the studied intersections operate at a level of service D or better during the peak weekday PM hour.

During the peak Saturday hour, the Pugsley Road approach to its intersection with NY 312 operates at a level of service F. All other movements at the studied intersections operate at a level of service D or better during the peak Saturday hour.

e. **Accident Analysis**

JMC requested and reviewed accident reports for all studied intersections and roadway segments between intersections during a three year period from 11/01/2014 to 10/31/2017. Accident reports within the study area have been provided by the New York State Department of Transportation and the Putnam County Sheriff's Department. The data from the accident reports have been provided in tabular format and are included within Appendix B-1.

There were 16 reported accidents at the intersection of US 6 & NY 312. 12 of the accidents were rear end type accidents which are common among signalized intersections most times due to following too closely or driver inattention. The remaining accidents that occurred at the intersection were two left turn type accidents, one sideswipe accident, and one head on accident. The head on accident occurred when a vehicle attempted to make a left turn without yielding the right-of-way. Four of the reported accidents occurred with wet pavement conditions.

Along the roadway segment of NY 312 between US 6 and Prospect Hill Road there were 18 reported accidents. There were 11 rear end type accidents and four fixed object type accidents. The remaining accidents were a single occurrence of sideswipe, left turn, and animal accident types. Three of the reported accidents occurred with wet pavement conditions. The majority of accidents were due to following too closely and driver inattention.

There were two reported accidents at the intersection of NY 312 & Prospect Hill Road. The rear end accident was due to the driver following too closely. The left turn accident was due to driver inexperience and failure to yield right-of-way.

There were two accidents reported along the roadway segment of NY 312 between Prospect Hill Road and Pugsley Road during the three year time period. One accident occurred with a deer and the other was an accident with a tree branch across the travel lane.

At the intersection of NY 312 & Pugsley Road one sideswipe accident was reported. The accident occurred with snow/ice pavement conditions and was due to slippery pavement and tire failure/inadequacy.

There were five reported accidents along the roadway segment of NY 312 between Pugsley Road and Caremount Driveway. There were two rear end type accidents, two fixed object type accidents, and one sideswipe type accident. Contributing factors for the reported accidents include failure to yield right-of-way, following too closely, unsafe speed, and falling asleep.

There were five reported accidents at the intersection of NY 312 & Caremount Driveway. There were two fixed object type accidents, one rear end type accident, one left turn type accident, and one right angle type accident. One accident occurred during snow/ice pavement conditions and was due to slippery pavement. The majority of the contributing factors for the remaining accidents

were failure to yield right-of-way and following too closely.

Along the roadway segment of NY 312 between Caremount Driveway and Independent Way there were nine reported accidents. There were four right angle type accidents and two rear end type accidents. The remaining accidents were a single occurrence of sideswipe, animal, and overtaking accident types. The most common contributing factors were improper lane usage, turning improperly, and following too closely.

There were 43 reported accidents at the intersection of NY 312 & Independent Way/Interstate 84 Eastbound Ramps. There were 29 rear end accidents with the most common contributing factor of following too closely attributed to 52 percent of the contributing factors. A total of 13 accidents occurred with wet, snow, or ice pavement conditions. NYSDOT determined that No Turn on Red signs should be installed at the intersection during its review of the Crossroads 312 project application.

There were three reported accidents along the roadway segment of NY 312 between Interstate 84 eastbound and westbound ramps. There was one overtaking type accident and one fixed object type accident. The unknown accident type occurred when an unsecured wooden board in the back of a truck swung across the centerline pavement markings striking a vehicle traveling in the opposite direction.

At the intersection of NY 312 & Interstate 84 Westbound Ramps there were 30 reported accidents. There were 22 rear end type accidents and four left turn type accidents. Following too closely was the most common contributing factor attributed to 58 percent of the contributing factors. There were 5 accidents that occurred with wet pavement conditions. NYSDOT determined that No Turn on Red signs should also be installed at this intersection during its review of the Crossroads 312 project application.

There were no reported accidents along the roadway segment of NY 312 between the Interstate 84 westbound ramps and International Boulevard.

There were nine accidents reported at the intersection of NY 312 & International Boulevard. There were four rear end type accidents and two accidents occurring with deer. The remaining accidents were a single occurrence of right turn, fixed object, and backing accident types. There were three accidents that occurred with wet, snow, or ice pavement conditions. Following too closely and animal's action were the most common contributing factors.

f. Public Transportation

The site's proximity to the Metro-North Southeast train station provides an excellent opportunity for potential private jitney service to the site. Trains leave the Southeast station on weekdays towards White Plains and Grand Central Station beginning at 4:24 AM and arrive at the Southeast station from the south until 3:49 AM. While bus service is provided along various routes in the County by Putnam Area Rapid Transit (PART), there is currently no public bus service to the site.

g. No-Build Conditions

In order to project future traffic increases to the year 2023, the existing volumes were increased by a general growth rate of 1% per year compounded annually. Based on discussions with the Town's Planning Consultant, the Applicant incorporated the traffic volumes associated with the Prospect Hill office development, the Crossroads 312 multi-use development, the Barrett Hill (Mount Ebo Lot 6) residential development, as well as the reopening of the Prospect Hill Road Bridge over the Metro-North railroad tracks. The traffic volumes associated with the other developments are provided on Table III.B-3A.

Additionally, the Applicant incorporated the traffic associated with the subject property's previous approval of 143 single family homes, which is approximately 110 trips during the Peak AM hour and 145 trips during the Peak PM hour on weekdays. The resulting volumes are known as 2023 No-Build volumes. While the previous application approved by the Town also acknowledged and anticipated the planned 237,000 s.f. of office/commercial space, the traffic related to the office/commercial uses have not been included in this study for a conservative analysis since Site Plan Approval had not been obtained for the planned office/commercial space. It is noted that the 1992 DEIS prepared for the site projected that the residential and office components would generate 539 trips during the peak AM hour and 565 trips during the peak PM hour on weekdays, which are significantly higher volumes when compared to the volumes associated with the current application.

The Crossroads 312 development and the previously approved 143 single family homes propose improvements to the roadway/intersections within the study area. The resulting 2023 no-build volumes incorporate the proposed improvements by these developments and represent traffic operation in 2023 with the redevelopment of the site to include 143 single family homes. The other development and no-build volumes have been shown in the figures in Appendix B-I.

The improvements associated with the previously approved Campus at Fields Corner development are located at the intersection of NY 312 & Pugsley Road. The southbound approach of Pugsley Road was proposed to be improved to provide a 14 foot wide left turn lane and a 14 foot wide 130 foot long right turn lane. NY 312 was proposed to be widened to provide an 11 foot wide 130 foot long left turn lane for the eastbound approach and an 11 foot wide 240 foot long right turn lane for the westbound approach.

The Crossroads 312 development proposes improvements at multiple

intersections within the study area. At the intersection of NY 312 & US 6 Crossroads 312 proposes to lengthen the southbound left/thru lane to 625 feet; restripe the eastbound thru/right lane to a left/thru/right turn lane creating a double left turn; provide a 625 foot long northbound receiving lane for the second left turn lane; and revise the traffic signal timing plan. At the intersection of NY 312 & Caremount Driveway the development proposes to separate the turning movements exiting the driveway by providing a 350 foot long left turn lane. At the intersection of NY 312 & Independent Way/I-84 Eastbound Ramps Crossroads 312 proposes to restripe the southbound approach for separate left, thru, and right turn lanes; restripe the northbound approach to provide two left turn lanes, one thru lane, and one right turn lane; provide no right turns on red at the eastbound, northbound, and southbound approaches; and revise the traffic signal timing plan. At the intersection of NY 312 & I-84 Westbound Ramps/Crossroads Site Driveway the development proposes to restripe the eastbound approach to provide a thru lane and construct a 300 foot long right turn lane; provide 350 foot long channelized right turn lane for the northbound approach; restripe to provide a 150 foot long southbound left turn lane; provide westbound approach with a site driveway connection with two left turn lanes, one thru lane, and one right turn lane; provide a 425 foot long southbound receiving lane for the second left turn lane; provide no right turns on red at the eastbound, southbound, and westbound approaches; and to revise the traffic signal timing plan. At the intersection of NY 312 & International Boulevard/Crossroads Site Driveway Crossroads 312 proposes to provide a 150 foot long southbound left turn lane, restripe the eastbound right lane for a shared thru/right lane; provide the westbound approach with a site driveway connection with separate left, thru, and right turn lanes; and revise the traffic signal timing plan.

NYSDOT is proposing improvements to the traffic signals along NY 312 at the I-84 ramps as well as International Boulevard intersection to coordinate the three traffic signals. NYSDOT may also undertake minor roadway improvements as part of the project. Since the specific signal improvements have not been

determined to date, the NYSDOT improvements are not reflected in the capacity analyses.

With the redevelopment of the subject property under No Build conditions as the previously approved I43 single family home, the heavy vehicle (truck percentage) factors for vehicles turning onto/from Pugsley Road have been based on the Synchro program default value of 2% to account for typical residential developments.

The anticipated operations under the No Build conditions are summarized on Table III.B-4. During the peak weekday AM hour, the NY 312 and US 6 intersection is projected to increase in delay to operate at a level of service C while the southbound left/thru lane is projected to operate at a level of service F. The eastbound approach, eastbound lanes, and northbound approach are projected to increase in delay to operate at a level of service D. At the Prospect Hill Road intersection, the southbound left turn lane is projected to increase in delay to operate at a level of service B while the Prospect Hill Road approach is projected to increase in delay from a level of service D under existing conditions to a level of service F under no-build conditions. Pugsley Road left turn lane is projected to operate at a level of service F while the right turn lane is projected to operate at a level of service D. The Caremount driveway left turn lane is projected to operate at a level of service F while the right turn lane is projected to operate at a level of service C. At the intersection of NY 312 and Independent Way, the eastbound right turn lane is projected to increase in delay to operate at a level of service C while the westbound thru/right lane is projected operate at a level of service D and the northbound right turn lane is projected to operate a level of service B. At the intersection of NY 312 and I-84 westbound ramps, the eastbound left turn lane is projected to increase in delay to operate at a level of service D while the eastbound right turn lane and approach are projected to operate at a level of service C. The northbound approach, northbound left lane, and northbound thru lane are projected to increase in delay to operate at a level

of service B. At the intersection of NY 312 and International Boulevard, the eastbound left turn lane is projected to increase in delay to operate at a level of service D. All other movements at the studied intersections are projected to operate at the same levels of service during the peak weekday AM hour as experienced under existing conditions.

During the peak weekday PM hour, the NY 312 and US 6 intersection is projected to increase in delay under No Build conditions to operate at a level of service F. The eastbound approach, eastbound lanes, southbound left/thru lane, southbound right turn lane, and southbound approach are projected to increase in delay to operate at a level of service F. At the Prospect Hill Road intersection, the southbound left turn lane is projected to operate at a level of service B and the Prospect Hill Road approach is projected to increase in delay from a level of service D under existing conditions to a level of service F under no-build conditions. Pugsley Road left turn lane is projected to operate at a level of service F while the right turn lane is projected to operate at a level of service D. The Caremount driveway left turn lane is projected to operate at a level of service F while the right turn lane is projected to operate at a level of service D. The overall delay at the intersection of NY 312 and Independent Way is projected to increase to operate at a level of service D. The northbound approach, northbound right turn lane are projected to increase in delay to operate at a level of service D while the eastbound right turn lane is projected to operate at a level of service B. The southbound approach and thru lane are projected to increase in delay to operate at a level of service E while the southbound left turn lane is projected to operate at a level of service F. At the intersection of NY 312 and Interstate 84 westbound ramps, the eastbound left turn lane is projected to operate at a level of service E while the eastbound approach is projected to operate at a level of service C. At the International Boulevard intersection, the eastbound left turn lane is projected to operate at a level of service D while the overall intersection is projected to operate at a level of service B. All other movements at the studied intersections are projected to operate at the same levels of service during the peak weekday

PM hour as experienced under existing conditions.

During the peak Saturday hour, the overall delay under No Build conditions at the intersection of NY 312 and US 6 is projected to increase to operate at a level of service D while the eastbound approach, eastbound left turn lane, and southbound approach are also projected to operate a level of service D. The northbound approach is projected to increase in delay to operate at a level of service E while the southbound left/thru lane is projected to increase in delay to operate at a level of service F. The westbound right turn lane and southbound right turn lane are projected to increase in delay to operate at level of service B. The Prospect Hill Road approach is projected to increase in delay from a level of service C under existing conditions to a level of service F under no-build conditions. Pugsley Road left turn lane is projected to operate at a level of service F while the right turn lane is projected to operate at a level of service C. The Caremount driveway left turn lane is projected to operate at a level of service F while the right turn lane is projected to operate at a level of service D. The overall delay, eastbound approach, and eastbound right turn lane at the NY 312/Independent Way intersection are projected to increase in delay to operate at a level of service D. The northbound left turn lane, northbound thru lane, and southbound thru lane are projected to increase in delay to operate at a level of service F while the northbound approach, southbound approach, and southbound left turn lane are projected to operate at a level of service E. The eastbound thru lane and northbound right turn lane are projected to increase in delay to operate at a level of service C. At the Intersection of NY 312 and I-84 westbound ramps, the overall intersection, eastbound approach, and eastbound right turn lane are projected to increase in delay to operate at a level of service C. The eastbound left turn lane is projected to increase in delay to operate at a level of service D while the northbound left turn lane is projected to operate at a level of service B. At the intersection of NY 312 and International Boulevard, the northbound approach and lanes are projected to increase in delay to operate at a level of service B. All other movements at the studied intersections are projected to operate at the same

levels of service during the peak Saturday hour as experienced under existing conditions.

h. Alternative No-Build Conditions

An alternative No-Build analysis has been prepared to assess future conditions without the roadway/intersection improvements associated with the Crossroads 312 project. The alternative No-Build also does not include the volumes associated with the Crossroads 312 project. Subtracting the Crossroads 312 Other Development volumes results in the 2023 Alternative No-Build Volumes, which are shown on the figures in Appendix B-I. The anticipated operations under the Alternative No Build conditions are summarized on Table III.B-5.

During the peak weekday AM hour, at the intersection of US 6 & NY 312 the overall intersection is projected to operate at level of service C. The westbound left turn lane is projected to operate at a level of service D, the eastbound approach is projected to operate at level of service C, and the eastbound thru/right lane is projected to operate at a level of service B. At the Prospect Hill Road intersection, the southbound left turn lane is projected to operate at a level of service B and the westbound approach is projected to operate at a level of service F under the alternative no build condition. Pugsley Road left turn lane is projected to operate at a level of service F while the right turn lane is projected to operate at a level of service D. Under the alternative no build conditions the Caremount Driveway is projected to operate at a level of service E. At the intersection of NY 312 & Independent Way/Eastbound Ramp the westbound thru/right turn lane is projected to operate at a level of service D. At the intersection of NY 312 & International Boulevard the southbound approach is projected to operate at a level of service. All other movements at the studied intersections are projected to operate at the same levels of service during the peak weekday AM hour as experienced under existing conditions.

During the peak weekday PM hour, at the intersection of US 6 & NY 312 the overall intersection is projected to operate at a level of service D under the alternative no build condition. The eastbound left turn lane is projected to operate at a level of service F, the eastbound approach is projected to operate at a level of service E, and the southbound right turn lane is projected to operate a level of service C. At the Prospect Hill Road intersection, the southbound left turn lane is projected to operate at a level of service B and the Prospect Hill Road approach is projected to increase in delay from a level of service D under existing conditions to a level of service F under alternative no-build conditions. Pugsley Road left turn lane is projected to operate at a level of service F while the right turn lane is projected to operate at a level of service C. The Caremount driveway left turn lane is projected to operate at a level of service F. At the intersection of NY 312 & Independent Way/Interstate 84 Eastbound Ramps the eastbound thru lane is projected to operate at a level of service D. At the intersection of NY 312 & Interstate 84 westbound ramps the northbound left turn lane is projected to operate at a level of service F, the northbound approach is projected to operate at a level of service D, and the eastbound right turn lane is projected to operate at a level of service B. All other movements at the studied intersections are projected to operate at the same levels of service during the peak weekday PM hour as experienced under existing conditions. Pugsley Road left turn lane is projected to operate at a level of service F while the right turn lane is projected to operate at a level of service C.

During the peak Saturday hour, the Prospect Hill Road approach is projected to operate at level of service F. The Caremount Driveway approach is projected to operate at level of service E under the alternative no build condition. At the intersection of NY 312 & Independent Way/I-84 Eastbound Ramps the overall intersection is projected to operate at a level of service D while the eastbound right turn lane is projected to operate at level of service B. At the intersection of NY 312 & I-84 Westbound Ramps the northbound left turn lane is projected to operate at level of service B. All other movements at the studied intersections

are projected to operate at the same levels of service during the peak Saturday hour as experienced under existing conditions.

3. Anticipated Impacts

a. Proposed Site Access

Regional access to the site would be primarily via I-84, which intersects NY 312 at interchange 19, and is expected to be utilized by the vast majority of the site related traffic. Secondary regional access is provided via NY 6.

Pugsley Road is a narrow road that provides access to the site from NY 312. The majority of the road is paved until just south of the intersections with Zimmer Road and Barrett Road. There are no pavement markings on the existing road and the pavement is in poor condition. North of Barrett Road, the dirt road portion of Pugsley Road changes name to Fields Corner Road, which continues as a relatively narrow dirt road of varying widths to the Patterson Town line, where it changes name to Fields Lane and continues primarily as a dirt road until it intersects Fair Street. Pugsley Road and Fields Corner Road are seasonally maintained roads and are closed annually from December 1 to April 1. Since the existing Town roads are relatively narrow and in poor condition and thus not suitable for the proposed use, the Applicant will need to reconstruct both Pugsley Road and Barrett Road to provide proper lane widths, grades and turning radii. The Pugsley Road portion to be reconstructed is 0.8 mile from Route 312 to Barrett Road. The Barrett Road reconstruction is 0.3 mile from Pugsley Road to the currently proposed cul-de-sac. Accordingly, while nearly all development sites in the Town can be accessed simply by connecting a driveway to the existing public road, the Applicant must construct more than a mile of new roads to access the subject development.

Barrett Road is proposed to become a private road as it does not lead to anywhere

but the property, which will save the Town the cost of maintenance, which will become the responsibility of the Applicant. At the request of the Town of Patterson, Fields Corner Road will be closed at the Patterson Town line, with gravel turnarounds provided, to restrict any trucks or other traffic from accessing the site directly from the Town of Patterson.

Access to Warehouse #1 and Warehouse #2 will be provided via a driveway off Pugsley Road, with loading docks provided at the rear (westerly) side of the warehouses. Access to Warehouse #3 and Warehouse #4 will be provided via Barrett Road, with a turnaround provided just past and to the west of the entrances to each of the two buildings. Loading docks are positioned to the east side of the buildings to face away from the residential uses to the west and northwest. Security gates are not proposed at this time. If a specific future tenant desires security gates, the gates could be installed within the individual access driveways for each building and would be placed in a manner that would not impede traffic destined to or from other buildings. The employee parking spaces have been designed to separate the substantial majority of employee parking areas from truck traffic.

The sight distances associated with the proposed Buildings 1 and 2 driveway's intersection with Pugsley Road as well as the improved Barrett Road's intersection with Pugsley Road/Fields Corner Road have been evaluated relative to American Association of State Highway and Transportation Officials (AASHTO) recommendations. Based on a 35 miles per hour design speed, the intersection sight distances, which exceed stopping sight distances, are satisfied at both intersections. For drivers exiting the minor approaches and looking left, the desired/provided intersection sight distance is 335 feet and for exiting drivers looking right, the desired/provided intersection sight distance is 390 feet.

NYSDOT restricts large trucks known as Special Dimension Vehicles, including 53 foot trailers, to travel within one mile of an interstate ramp, as well as along

specially designated truck access highways. The southern proposed site access driveway serving two buildings would be within one mile of the farthest I-84 ramp, the I-84 westbound ramps. In association with the project, Pugsley Road would be improved to provide 12 foot lanes and the proposed improvements to the Route 312/Pugsley Road intersection and the Pugsley Road/Barrett Road intersection have been designed to accommodate a WB-67 design (Special Dimension Vehicle) with a 53' trailer. The Applicant has been coordinating with NYSDOT, who as advised that Pugsley Road will be designated as a truck access highway upon completion of the proposed improvements. Barrett Road will not need to be designated as a truck access highway since it is proposed to be a private road and the NYSDOT Special Dimension Vehicles regulations do not apply to private roads.

The Applicant has met with NYSDOT on multiple occasions to discuss the project, including the requested Special Dimension Vehicles Access Highway designation. Based on these meetings, and as described in a document provided by NYSDOT to the Applicant and representatives from the Town at a meeting on 4/16/2018, the Applicant understands that the NYSDOT will approve the Access Highway designation subject to the following conditions:

1. The NYSDOT has indicated that they require written documentation from the Town supporting the Access Highway request.
2. Submission of final plans indicating minimum lane widths of 10 feet;
3. Notification to NYSDOT Region 8 when the road is completed; and
4. NYSDOT Region 8 inspection of the site to ensure that the road was constructed according to the project plan.

Once NYSDOT Region 8 has inspected the site and roadway it would notify the NYSDOT's Main Office in Albany, NY, and it would be entered into the database that the Access Highway designation is approved, which would be effective immediately. No written notification to the NYS Police or Town would occur until this inspection has been completed. The final approval of the Access Highway

designation will likely coincide with the Town's issuance of a Certificate of Occupancy (CO) to the project. The NYSDOT approval process is further described in Appendix B-1.

b. Build Volumes

The proposed logistics center buildings are anticipated to be state of the art facilities and may include high-cube highly automated uses which have fewer employees compared to a traditional warehouse. Based on comments from the Town's traffic consultant, this study analyzes the proposed buildings as traditional warehouses to provide a conservative analysis.

The projected traffic associated with the proposed development is based on information published by the Institute of Transportation Engineers (ITE) in its publication "Trip Generation Manual, 9th Edition." Table III.B-6 shows the traffic volumes associated with the proposed development as a typical warehouse (as described above) compared to the previously approved 143 single family homes and include the equations/rates that were used. The ITE trip generation associated with the high-cube warehouse land use during the peak weekday AM, weekday PM, and Saturday midday hours are approximately 124, 135 and 146 trips, respectively. The ITE trips associated with general warehouse on a square footage basis which have been analyzed as directed by the Town are 337, 360 and 146 vehicles during the same three peak hours. During the peak weekday AM, weekday PM, and Saturday midday hours, the development will result in approximately 227, 215 and 10 net additional trips, respectively with the general warehouse volumes as compared to the 143 residential units. These driveway volumes for warehouse use are conservative as previously mentioned since high-cube warehouse trip generation is substantially less. Based on the high-cube warehouse land use compared to the 143 residential units, the proposed development would generate a net of 14 additional trips during the peak AM hour, 52 fewer trips during the peak PM hour and 10 additional trips during the peak

Saturday hour. In addition, no credit has been applied for potential jitney shuttle service between the site and the Southeast train station.

As previously mentioned, the Applicant incorporated the traffic associated with the subject property's previous approval of 143 single family homes in the 2023 No-Build volumes. While the previous application approved by the Town also analyzed and anticipated the planned 237,000 s.f. of office/commercial space, the traffic related to the office/commercial uses have not been included in this study for a conservative analysis since Site Plan Approval had not been obtained for the planned office/commercial space. It is noted that the 1992 DEIS prepared for the site projected that the residential and office components would generate 539 trips during the peak AM hour and 565 trips during the peak PM hour on weekdays. Accordingly, the currently proposed development will generate approximately 202 and 205 net fewer trips than projected in the 1992 DEIS during the peak weekday AM and PM peak hours, respectively, with the conservative general warehouse land use, which is a significant reduction in peak highway hour site generated traffic volumes. When the 1992 DEIS volumes are compared to the ITE high-cube warehouse volumes, the net reductions are 415 trips during the peak AM hour and 430 trips during the peak PM hour. The driveway volumes for the development and other referenced traffic volume figures are shown in Appendix B-I.

The primary (generated) volumes were routed through the studied intersections based on traffic volume data and consideration of the area roadways. Figure 18, Primary Trip Distributions, shows all site traffic utilizing NY 312. Pugsley Road and Fields Corner Road are currently closed in the Town of Southeast from December 1 to April 1. As discussed during a meeting with the Patterson Town Supervisor, a permanent closure of Fields Corner Road is proposed by providing a gate at the Town line, as shown on Figure III.B-I. The gate would have a Knox lock which could be opened in the event of an emergency. Truck turnarounds and appropriate signage are proposed in the Town of Southeast and the Town of

Patterson. The existing volumes utilizing the roads in Southeast during the other months are low, therefore relatively few vehicles will be diverted to other locations, including I-84 and Route 6.

Adding the development related traffic to projected future volumes without the 143 previously approved residential units results in 2023 Build Volumes, which reflect projected volumes after the completion and occupancy of the proposed development.

To account for variation in the heavy vehicle factors at the intersection of NY 312 & Pugsley Road associated with the proposed logistics center, the Applicant conducted turning movement counts at the existing Gap Distribution Center located on Merritt Boulevard in Fishkill, NY on December 6, 2017. Truck volumes were counted at the site driveways from 7:00 – 10:00 AM and from 3:00 – 6:00 PM and separated by vehicle classification. Table III.B-7 displays the volumes of heavy vehicles entering and exiting during all counted hours. The heavy vehicle factors utilized in the build conditions for vehicles turning onto/from Pugsley Road have been calculated by using the peak hourly volume of heavy vehicles counted at the existing distribution center (16 AM and 20 PM) and dividing by the volumes shown on the traffic figures.

Intersection capacity analyses computed based on the Build Volumes with the proposed improvements indicate that the area intersection movements will generally operate at the same levels of service as projected for the No-Build Volumes. Projected operations with the proposed development are shown on Tables III.B-10 through III.B-12.

As part of the proposed development, the Applicant initially proposed to construct a new traffic signal at the intersection of NY 312 and Pugsley Road and an eastbound left turn lane and a westbound right turn lane along NY 312. Pugsley Road was proposed to be widened to provide dual left turns with a shared right

turn onto NY 312. NY 312 was to be modified to receive the dual left turns from Pugsley Road. The improvements are shown on Figure III.B-2.

The NY 312/Pugsley Road intersection was first analyzed based on traffic signal control and the road improvements described above. During the peak weekday AM hour, the Pugsley Road approach is projected to operate at a level of service E while the overall intersection is projected to operate at a level of service B with the proposed improvements. During the peak weekday PM hour, the Pugsley Road approach is projected to operate at a level of service E while the overall intersection is projected to operate at a level of service C with the proposed improvements. During the peak Saturday hour, the Pugsley Road approach is projected to operate at a level of service D while the overall intersection is projected to operate at a level of service B with the proposed improvements.

Table III.B-9 depicts that the NY 312/Pugsley Road intersection and traffic volumes meet the traffic signal warrant threshold for Warrant #1 as mentioned in the “Manual of Uniform Traffic Control Devices 2009 Edition (MUTCD)”. Since NY 312 has a posted speed limit of 45 mph, the MUTCD states that the 70% threshold columns for Warrant #1 Eight-Hour Vehicular Volume Warrant were utilized.

As a result of three meetings with NYSDOT and additional analyses of traffic and geometric considerations, a modern roundabout is the preferred traffic control for the intersection, rather than the signalized intersection. The roundabout is shown on Figure III.B-3. The proposed roundabout would provide two entry/exit lanes for the eastbound NY 312 approach and two entry/exit lanes with a right turn bypass would be provided for the westbound NY 312 approach. Along the Pugsley Road approach two entry lanes and one exit lane would be provided. A mountable section in the center island would accommodate turning maneuvers from larger vehicles.

Projected operations with the roundabout indicate the intersection would operate at level of service C or better with the roundabout alternative, with the delays for certain movements being significantly shorter than with a signalized intersection. With respect to the capacity of traffic movement through the intersection, the roundabout accommodates the projected traffic volumes well within the capacity while the signalized intersection operates closer to capacity, which is less desirable. Accordingly, the roundabout mitigation is preferred by the Applicant as compared to the signalized intersection with turn lanes improvements and is expected to remain preferred by NYSDOT upon its detailed review of the projected traffic operations.

With a roundabout, during the peak weekday AM hour, at the intersection of NY 312 & Pugsley Road the NY 312 lanes are projected to operate at a level of service A while the Pugsley Road lanes are projected to operate at a level of service B. During the peak weekday PM hour, at the intersection of NY 312 & Pugsley Road the Pugsley Road lanes are projected to operate at a level of service C. The eastbound NY 312 lanes are projected to operate at a level of service B while the westbound NY 312 lanes are projected to operate at a level of service A. During the peak Saturday hour, at the intersection of NY 312 & Pugsley Road the NY 312 lanes are projected to operate at a level of service A while the Pugsley Road lanes are projected to operate at a level of service B.

Traffic signal timing improvements are also proposed at the intersection of NY 312 and Independent Way. The Applicant will coordinate with NYSDOT, who owns and maintains the existing traffic signal at Independent Way, to recommend the signal timing improvement.

c. Alternative Build Volumes

Projected conditions including the proposed development traffic, but without Crossroads 312 traffic volumes have been analyzed. The Build conditions also do not include proposed improvements by Crossroads 312. The Alternative Build Volume figures are included in Appendix B-1.

The proposed alternative improvements at the NY 312/Pugsley road intersection would be the same under this scenario. In addition, the Applicant would be willing to provide certain improvements proposed by the Crossroads 312 development in the event that development is not constructed. At the intersection of NY 312 & Independent Way/I-84 Eastbound Ramps, the Applicant would restripe the southbound approach for separate left, thru, and right turn lanes; restripe the northbound approach to provide two left turn lanes, one thru lane, and one right turn lane; provide no right turns on red at the eastbound, northbound, and southbound approaches; and revise the traffic signal timing plan. At the intersection of NY 312 & I-84 Westbound Ramps the Applicant would provide no right turns on red at the eastbound and southbound approaches; and revise the traffic signal timing. At the intersection of NY 312 & International Boulevard the Applicant would revise the traffic signal timing. The Applicant will coordinate with the NYSDOT, who owns and maintains the existing traffic signals at the intersections, to recommend the improvements. As previously mentioned, NYSDOT intends to coordinate the three existing traffic signals.

Intersection capacity analysis computed based on the Alternative Build Volumes with the proposed improvements indicate that the area intersection movements will generally operate at the same levels of service as projected for the Alternative No-Build Volumes. Projected operations with the proposed development without Crossroads 312 are shown on Tables III.B-10 through III.B-12.

The Caremount Driveway approach is projected to operate at level of service F during the alternative build condition. It is understood that Caremount is exploring a secondary access connection to Independent Way. At the Interstate 84 Westbound Ramp intersection, the overall intersection is projected to operate at a level of service C.

At the intersection of NY 312 & Independent Way/I-84 Eastbound Ramps the overall intersection is projected to operate at a level of service D.

At the intersection of NY 312 & I-84 Westbound Ramps the overall intersection is projected to operate at a level of service C under the alternative build conditions.

During the peak weekday PM hour, the Pugsley Road approach is projected to operate at a level of service E while the overall intersection is projected to operate at a level of service C with the traffic signal and turn lanes improvements. During the peak Saturday hour, the Pugsley Road approach is projected to operate at a level of service D while the overall intersection is projected to operate at a level of service B with the traffic signal and turn lanes improvements.

With the roundabout alternative improvement at the intersection of NY 312 & Pugsley Road, the operations are improved. During the peak weekday AM hour, at the intersection of NY 312 & Pugsley Road, the NY 312 lanes are projected to operate at a level of service A while the Pugsley Road lanes are projected to operate at a level of service B. During the peak weekday PM hour, at the intersection of NY 312 & Pugsley Road, the Pugsley Road left lane is projected to operate at a level of service C while the right lane is projected to operate at a level of service B. The eastbound NY 312 lanes are projected to operate at a level of service B while the westbound NY 312 lanes are projected to operate at a level of service A. During the peak Saturday hour, at the intersection of NY 312 &

Pugsley Road, the NY 312 lanes are projected to operate at a level of service A while the Pugsley Road lanes are projected to operate at a level of service B.

d. Sensitivity Analysis Build Volumes

Two additional even more conservative (worst case) alternative scenarios were also analyzed at the request of the Town Planning Consultant as if the peak hours of the site generated traffic occurred during the same peak hours of the adjacent roadway traffic. The scenarios are identified as Sensitivity Analysis and are essentially the same, except when related to the Crossroads 312 development. The first sensitivity scenario includes Crossroads 312 and the second sensitivity scenario does not include Crossroads 312. Although the trip generation utilized in the Build condition provided a conservative analysis as previously mentioned by basing the traffic generation on general warehouse space as suggested by the Town Planning Consultant, an additional very conservative analysis has been prepared to assess the conditions as if the peak hour of the generator occurs during the peak weekday roadway hour, rather than outside of the peak hours of the roadway as typically occurs with warehouse developments. The development volumes under this analysis are 472 and 506 peak hour trips, being approximately 362 and 361 net additional peak hour trips based on this extremely conservative superimposed peak hour trips sensitivity analysis, as compared to the 143 residential units during the peak weekday AM and weekday PM hours, respectively. These volumes are substantially higher than anticipated by the Applicant. As previously mentioned, the traffic related to the previously proposed office/commercial uses have not been included in this study since, while analyzed and anticipated, the office/commercial uses had not received Site Plan Approval. The 1992 DEIS prepared for the site projected that the residential and office campus components would generate 539 trips during the peak AM hour and 565 trips during the peak PM hour on weekdays. Accordingly, even with this very conservative sensitivity analysis, the currently proposed development would generate approximately 67

and 59 net fewer trips than projected in the 1992 DEIS during the peak weekday AM and PM peak hours, respectively.

The proposed improvements discussed above for the build conditions have also been implemented into the sensitivity analysis build condition. Intersection capacity analysis computed based on the Sensitivity Analysis Build Volumes with the proposed improvements indicate that most of the area intersection movements will generally operate at the same levels of service as projected for the Build Volumes. Projected operations with the proposed development are shown on Tables III.B-10 through III.B-12.

At the intersection of NY 312 & Pugsley Road, the southbound approach is projected to operate with delays under the sensitivity analysis with the considered traffic signal and turn lanes. Under the sensitivity analysis with the roundabout alternative, projected delays are reduced, especially along the Pugsley Road approach, and the intersection operates at level of service C or better.

During the peak weekday AM hour, the intersection of NY 312 & Independent Way/I-84 Eastbound Ramp the southbound left turn lane is projected to operate at level of service E. During the peak weekday PM hour, the eastbound approach is projected to operate at level of service D.

The NY 312 two lane overpass at I-84 provides ample capacity to accommodate all volumes considered, including this worst-case scenario. The additional lanes are needed and provided at the signalized intersections on both sides of the overpass since traffic is not a free flow condition and vehicles wait at the signals for the green indication.

e. **Sensitivity Analysis Alternative Build Volumes**

The projected condition without the Crossroads 312 development has also been assessed with the higher development volumes associated with the peak hour of the generator as discussed above. The sensitivity analysis alternative build scenario does not include volumes or improvements associated with the Crossroads 312 project. The volumes utilized in the analysis are shown on Figures in Appendix B-I.

The proposed improvements discussed above for the alternative build conditions without Crossroads 312 development have also been implemented into the alternative sensitivity analysis build condition without the Crossroads 312 development. Projected operations with the very conservative proposed development volumes and without the Crossroads 312 development are shown on Tables III.B-10 through III.B-12.

I. **Mitigation Measures**

Extensive mitigation is proposed to accommodate the project and the associated site generated traffic volumes. The reconstruction of Pugsley Road and the improvements proposed at the NY 312/Pugsley Road intersection, together with the signal and potential lane use improvements to the nearby interchange with I-84 at NY 312, will provide an excellent roadway system to accommodate the proposed logistics center development.

a. **Gate at Patterson Town Line**

Pugsley Road and Fields Corner Road are currently closed in the Town of Southeast from December 1 to April 1. As discussed during a meeting with the Patterson Town Supervisor, a permanent closure of Fields Corner Road is

proposed by providing a gate at the Town line, as shown on Figure III.B-1. The gate would have a Knox lock which could be opened in the event of an emergency. Truck turnarounds and appropriate signage are proposed in the Town of Southeast and the Town of Patterson. The existing volumes utilizing the roads in Southeast during the other months are typically less than 15 vehicles per hour, therefore relatively few vehicles will be diverted to other locations, including I-84 and Route 6.

b. Pugsley Road & Barrett Road Improvements

Pugsley Road, a Town road, is currently a narrow, partially paved and partially dirt road which extends to Barrett Road. North of Barrett Road, the Pugsley Road name changes to Fields Corner Road, which continues as a gravel road to the Patterson Town line, where the name changes again to Fields Lane. Barrett Road is currently a Town Road which is proposed to be a private road.

Since the existing Town roads are relatively narrow and in poor condition and thus not suitable for the proposed use, the Applicant will need to reconstruct both Pugsley Road and Barrett Road to provide proper lane widths, grades and turning radii. The reconstruction will include the construction of wider roads with a thicker road section. At the request of the Town, a portion of Fields Corner Road immediately north of Barrett Road will also be improved to eliminate existing curves in the Pugsley Road/ Barrett Road/ Fields Corner Road intersections. A gravel road will be provided along the improved Fields Corner Road.

The Pugsley Road portion to be reconstructed is 0.8 mile from Route 312 to Barrett Road. The Barrett Road reconstruction is 0.3 mile from Pugsley Road to the currently proposed cul-de-sac. Accordingly, while nearly all development sites in the Town can be accessed simply by connecting a driveway to the existing public road, the Applicant must construct more than a mile of new roads to access the subject development.

NYSDOT restricts large trucks known as Special Dimension Vehicles, including 53 foot trailers, to travel within one mile of an interstate ramp, as well as along specially designated truck access highways. The southern proposed site access driveway serving two buildings would be within one mile of the farthest I-84 ramp, the I-84 westbound ramps. In association with the project, Pugsley Road and Barrett Road would be improved/reconstructed to provide 12 foot lanes.

The proposed improvements to the NY 312/Pugsley Road intersection, and the Pugsley Road/Barrett Road intersection have been designed to accommodate a WB-67 design (Special Dimension Vehicle) with a 53' trailer. The Applicant has been coordinating with NYSDOT, who has advised that Pugsley Road will be designated as a truck access highway upon completion of the proposed improvements. Barrett Road will not need to be designated as a truck access highway since it is proposed to be a private road.

c. NY 312/Pugsley Road Improvements

As part of the proposed development, the Applicant initially proposed to construct a new traffic signal at the intersection of NY 312 and Pugsley Road and an eastbound left turn lane and a westbound right turn lane along NY 312. Pugsley Road was proposed to be widened to provide dual left turns with a shared right turn onto NY 312. NY 312 was to be modified to receive the dual left turns from Pugsley Road. The improvements are shown on Figure III.B-2.

As a result of three meetings with NYSDOT and additional analyses of traffic and geometric considerations, a modern roundabout is the preferred traffic control for the intersection, rather than the signalized intersection. The roundabout is shown on Figure III.B-3. The proposed roundabout would provide two entry/exit lanes for the eastbound NY 312 approach and two entry/exit lanes with a right turn bypass would be provided for the westbound NY 312 approach. Along the

Pugsley Road approach two entry lanes and one exit lane would be provided. A mountable section in the center island would accommodate turning maneuvers from larger vehicles.

Projected operations with the roundabout indicate the intersection would operate at level of service C or better with the roundabout alternative, with the delays for certain movements being shorter than with a signalized intersection. With respect to the capacity of traffic movement through the intersection, the roundabout accommodates the projected traffic volumes well within the capacity while the signalized intersection operates closer to capacity, which is less desirable. Accordingly, the roundabout mitigation is preferred by the Applicant as compared to the signalized intersection with turn lanes improvements and is expected to remain preferred by NYSDOT upon its detailed review of the projected traffic operations.

In addition to the improved traffic flow, modern roundabouts typically experience substantially fewer accidents than signalized intersections, and the accidents that do occur typically have significantly less injuries and vehicle damage due primarily to the low travel speeds associated with roundabouts. There has been a proliferation of modern roundabouts throughout Europe and many other countries throughout the world over the past 25 years and roundabouts are becoming more common throughout the United States over the past decade, and is now the NYSDOT preferred intersection control.

d. Additional Intersection Improvements

NYSDOT intends to coordinate the three existing traffic signals along NY 312 at the I-84 ramps and International Boulevard. The NYSDOT improvements will enhance traffic flow between the intersections.

Vehicles exiting the Caremount Medical driveway experience peak hour delays when exiting onto NY 312. NYSDOT previously determined in association with the Crossroads 312 project that a traffic signal was not warranted based on the site driveway volumes. While not reflected in this analysis, Caremount Medical has approached the Town to expand its parking lot and construct a second site driveway through Town property which would provide access to Independent Way, which provides access to the traffic signal at NY 312.

The improvements proposed by the Applicant at additional intersections vary depending on the various scenarios considered as follows:

1. With Crossroads 312 Development

Traffic signal timing improvements are also proposed at the intersection of NY 312 and Independent Way. The Applicant will coordinate with NYSDOT, who owns and maintains the existing traffic signal at Independent Way, to recommend the signal timing improvement.

2. Without Crossroads 312 Development

The Applicant would be willing to provide certain improvements proposed by the Crossroads 312 development in the event that development is not constructed.

At the intersection of NY 312 & Independent Way/I-84 Eastbound Ramps, the Applicant would restripe the southbound approach for separate left, thru, and right turn lanes; restripe the northbound approach to provide two left turn lanes, one thru lane, and one right turn lane; provide no right turns on red at the eastbound, northbound, and southbound approaches; and revise the traffic signal timing plan.

At the intersection of NY 312 & I-84 Westbound Ramps the Applicant would provide no right turns on red at the eastbound and southbound approaches; and revise the traffic signal timing.

At the intersection of NY 312 & International Boulevard the Applicant would revise the traffic signal timing. The Applicant will coordinate with the NYSDOT, who owns and maintains the existing traffic signals at the intersections, to recommend the improvements.

As previously mentioned, NYSDOT intends to coordinate the three existing traffic signals along NY 312.