



March 11, 2021

Luke Interrante
SSLI Holdings LLC
110 Maiden Lane
Kingston, NY 12401

**RE: Traffic Assessment for Bluestone Commons, Bluestone Court, City of Kingston, Ulster County, New York;
CM Project No. 121-069**

Dear Mr. Interrante:

As requested, Creighton Manning Engineering, LLP (CM) has completed a Traffic Assessment for the proposed Bluestone Commons residential project located on Bluestone Court, off Lucas Avenue. The project includes the construction of 47 apartments, divided into four, two-story buildings with access onto Bluestone Court. The site is approximately 2.7 acres with approximately 160 feet of frontage along Bluestone Court and 16 feet of frontage along Lucas Avenue, with cross access rights to another 14 feet of right of way. A 27-foot driveway is proposed off Bluestone Court with an emergency access to Lucas Avenue via the 16-foot right of way. This assessment found the following:

- Bluestone Court would serve one trip (a car entering or exiting), about every 1.5 to 2 minutes of the morning and afternoon peak commuter hours.
- The level of traffic increase is less than NYSDOT and ITE guidelines for recommending a detail traffic analysis.
- The quality of life on Bluestone Court is considered Good to Excellent.
- Existing sight distances entering Lucas Avenue are better from Bluestone Court than the emergency access driveway.

1.0 Trip Generation

Trip generation determines the quantity of traffic expected to travel to and from a given site. The Institute of Transportation Engineers’ (ITE) *Trip Generation Manual*, 10th Edition, is the industry-standard resource for estimating trip generation for proposed land uses based on data collected at sites with similar land uses.

The applicable land use code for the proposed residential development is Land Use Code (LUC) 220 “Multifamily Housing (Low-Rise). Table 1 shows the ITE trip generation estimate for the existing homes on Bluestone Court (LUC 210- Single-Family Detached Housing) and the proposed uses and the total trips added due to the proposed project.

Table 1 – Trip Increase for Proposed Project

Data Source	Weekday Morning Peak			Weekday Evening Peak Hour			Daily Trips		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Bluestone Court – 10 Existing Single Family Homes	3	9	12	7	4	11	63	63	126
Bluestone Commons – 47 Multi-Family (Low Rise)	5	18	23	19	11	30	157	157	314
Total	8	27	35	26	15	41	220	220	440

As Table 1 shows, the proposed project will result in an increase of 23 trips during the AM peak hour and 30 trips during the PM peak hour. In total, Bluestone Court would accommodate 35 trips in the AM peak hour and 41 trips in the PM peak hour, an average of about one trip every 1.5 to 2 minutes of the peak hour. Because apartments

are smaller than single-family homes, they generate fewer trips per unit in comparison. As such, the 47 apartments generate the equivalent traffic volume of about 25 to 30 additional single-family homes. For comparison, Bluestone Court would accommodate the traffic equivalent of a 35 to 40-home street, similar to that of the Arnold Dr/Virginia Dr (Stephan Rd, Kerry Ln, Lainey Ln) neighborhood, which has 38 single family homes (see aerial below). Traffic entering and exiting this dead-end neighborhood is a comparable example of the proposed condition for Bluestone Court. If the project site were developed as single-family homes, about 15 units could be constructed.

Hourly traffic volumes on Lucas Avenue were collected in September 2019 by NYSDOT and indicate that Lucas Avenue carries approximately 599 trips during the weekday AM peak hour and 598 trips during the PM peak hour. The Bluestone Commons project will add approximately 4 to 5 percent more traffic to the road.

The magnitude of the new vehicle trips generated at the site (23 trips in the AM and 30 trips in the PM peak hour) is less than the NYSDOT and ITE threshold of 100 site generated trips on any one intersection approach for needing off-site intersection analysis. This guidance was developed as a tool to identify locations where the magnitude of traffic generated has the potential to impact operations at off site intersections and screen out locations from requiring detailed analysis that do not reach the 100-vehicle threshold indicating that additional detailed intersection analysis is not needed and that the site generated traffic will be accommodated by the existing roadway network.



2.0 Quality of Life Assessment

The quality of life provided by a roadway is subjective and typically conditioned upon the classification of the road. Highways and high-speed arterials limit access to adjoining properties and are not conducive to residential uses. Collector roads begin to balance the needs of adjacent lands and commuter volumes, while local roads provide the most access and are best suited for residential purposes. Most often, the ability of a road to accommodate additional traffic is based on levels of service and traffic delays, to which low volumes roads generally have plenty of capacity to accommodate such increases. However, when analyzing very low-volume local roads such as Bluestone Court, relatively small reductions in capacity can cause a greater perceived impact on quality of life. In other words, increased traffic volume on a local roadway may adversely affect the quality of life of residents and users of the roadway, but it may not necessarily result in significant worsening of accessibility or safety in the area that would result in unacceptable conditions based on more widely accepted standards.

To help in assessing the quality of life of residents along local roads with respect to traffic volumes, the Institute of Transportation Engineers (ITE) published information as part of a May 1982 edition of the ITE Journal article titled *How Much Is Too Much (Traffic)*. This information is shown in Table 2 (right).

Table 2 – Local Road Environment Quality Summary

Daily Traffic Volume (vehicles per day)	Environment Rating
< 300	Excellent
300 to 600	Good
600 to 1,200	Acceptable
> 1,200	Poor

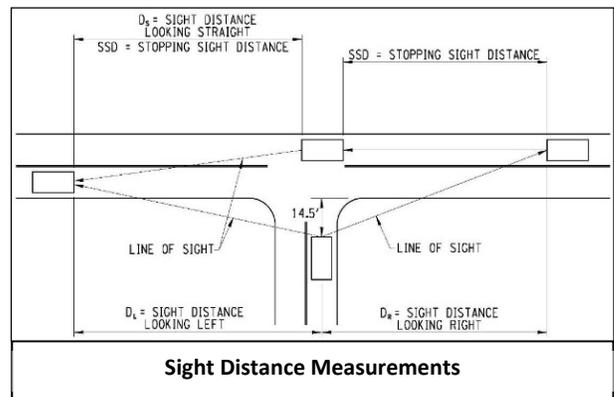
Source: Spitz, S. P.E. (1982). How Much Is Too Much (Traffic). *ITE Journal*, May 1982, pp. 44-45.

A review of the daily traffic volumes on Bluestone Court as compared to the traffic volume thresholds in Table 2 shows that the Local Road Environmental Quality is projected to change from Excellent to Good for the segment between the site driveway and Lucas Avenue, about 200 feet (25%). From the site driveway south to the end of Bluestone Court (about 550 feet – 75%), conditions will remain Excellent given the lower traffic volumes using that end of the street.

3.0 Sight Distance Assessment

A sight distance evaluation was completed at the emergency access driveway (16-foot frontage) and intersection of Bluestone Court on Lucas Avenue. The sight distance was measured from the perspective of a vehicle exiting the driveway/side road and for a vehicle traveling west along Lucas Avenue looking straight ahead to turn left into the driveway/side road. The available intersection sight distance should provide drivers a sufficient view of the intersecting street to allow passenger cars to enter or exit the intersection without excessively slowing vehicles traveling at or near the operating speed on the intersecting mainline.

Stopping sight distance was also measured on Lucas Avenue at the proposed site driveway locations. Stopping sight distance is the length of the roadway ahead that is visible to the driver. The available stopping sight distance on a roadway should be of sufficient length to enable a vehicle traveling at or near the operating speed to stop before reaching a stationary object in its path. The adjacent diagram illustrates these sight distance measurements.



The posted speed limit on Lucas Avenue is 30-mph. Traffic speed measurements collected as part of this study show that the 85th percentile speed on Lucas Avenue is approximately 35-mph. The available sight distances shown in Table 3 are compared to the guidelines presented in AASHTO’s *A Policy on Geometric Design of Highways and Streets*, 2018 and NYSDOT design guidance (EB 17-007) for the applicable 35-mph operating speeds on Lucas Avenue.

Table 3 – Sight Distance Summary (Feet)

Intersection		Intersection Sight Distance ¹				Stopping Sight Distance ²	
		Right Turn from Driveway (D _L)	Left Turn from Driveway		Left Turn from Lucas Ave (D _S)	SSD _{EB}	SSD _{WB}
			Looking Left (D _L)	Looking Right (D _R)			
Lucas Avenue/ Emergency Access Driveway	Available	30 (350 ³)	30 (350 ³)	40 (500 ³)	680	660	>900
	Recommended	335	390	390	285	250	250
Lucas Avenue/ Bluestone Court	Available	360	360	410	>900	>900	>900
	Recommended	335	390	390	285	250	250

¹ Intersection sight distance is measured at an eye height and object height of 3.5-ft.

² SSD_{NB, SB} = Stopping sight distance measured for a 2-foot object located in the path of eastbound and westbound vehicles on Lucas Ave.

³ (XXX) = Sight Distance measured assuming removal of vegetation along Emergency Access Driveway

The sight distance evaluation indicates that the available intersection sight distance looking east and west for vehicles turning left and right out of the Emergency Access driveway on Lucas Avenue is severely limited due to existing vegetation (see photo #1, #2, below). If the vegetation were cleared, the distance looking left would

only be slightly less (40 feet) than the recommended AASHTO guidelines; however, it's unclear whether this vegetation is within the ROW or on private property. The available sight distance looking straight to make a left turn and the stopping sight distance for vehicles traveling eastbound and westbound on Lucas Avenue into the Emergency Access driveway exceed the AASHTO guidelines. The available sight distances for site access via Bluestone Court (see photo #3, #4 below) generally meet or exceed the guidelines; the distance looking left (D_L) for a left turn from the site is slightly less (30 feet) than desirable, but not critically limited; therefore no sight distance improvements are necessary.



4.0 Driveway Location

Since the project has two access points, both potential driveway locations were reviewed. The present proposed location on Bluestone Court adds traffic onto an existing road and intersection (Lucas Avenue/Bluestone Court) and does not result in the creation of a new access point along what is otherwise a dense section of road (17 intersections per mile-excluding driveways) with side roads located every 175 to 700 feet. The creation of a project driveway will create an intersection 140 to 160 feet from the adjoining intersections (Bluestone Court/Boulder Ave and Voorhees Ave) and will create an additional conflict point along the corridor. Conversely, Bluestone Court has been established for about 15 years and is treated as a single intersection with Boulder Ave. From an access management and planning perspective, the better design option is to connect the project to Bluestone Court.

5.0 Motor Vehicle Collision Analysis

Crash data was requested from NYSDOT to quantify the number of crashes and identify any crash patterns or concentrations on Lucas Avenue from Golf Terrace up to and including Millers Lane. That information is pending and this letter will be updated upon receipt of the data.

6.0 Conclusions

The project includes the construction of 47 apartments divided into four, two-story buildings on Bluestone Court off Lucas Avenue in the City of Kingston. Access to the site is provided via a 27-foot wide driveway off Bluestone Court and an emergency access to Lucas Avenue via the 16-foot right of way. The project is estimated to generate 23 new trips during the AM peak hour and 30 trips in the PM peak hour. Including the 10 existing homes on Bluestone Court, a total of 35 trips are expected in the AM peak hour and 41 trips in the PM peak hour. This volume is less than the 100-trip per approach threshold used by NYSDOT and ITE as guidance in estimating if there will be off-site traffic impacts warranting detailed study, and would contribute an additional four to five percent additional traffic to Lucas Avenue. Further, the daily traffic volume expected on Bluestone Court would be categorized as a "good" quality of life for an assessment of local roads.

Sight distances were measured from the Bluestone Court and the emergency access driveway on Lucas Avenue. The emergency access location has severe restrictions due to vegetation. If the vegetation were removed, acceptable sight distances could be achieved, but it's unclear whether said vegetation is on private property. The existing sight distances at Bluestone Court were found to meet or exceed the AASHTO recommendations, with the exception of the distance looking left, which is slightly less than desirable (30 feet short), but not critical; therefore, no sight distance improvements will be necessary.

Please feel free to call our office if you have any questions or comments regarding the above assessment.

Respectfully submitted,
Creighton Manning Engineering, LLP



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