

February 19, 2019

Mr. Charles Blauchman
Hudson Valley Rhinebeck, LLC
c/o CB Developers
161 Chrystie Street, 2nd Floor
New York, NY 10002

via email: mrudikoff@rudikoff.com

RE: Traffic Impact Analysis Addendum #2, Rock Ledge, Town of Rhinebeck, Dutchess County, New York; CM Project No. 114-053

Dear Mr. Blauchman:

Creighton Manning Engineering, LLP (CM) has prepared this Traffic Addendum #2 for the proposed *Rock Ledge* project located on Ackert Hook Road in the Town of Rhinebeck. This Addendum supplements the following previous submissions:

- *Traffic Impact Analysis*, dated April 20, 2018
- Addendum #1, dated November 30, 2018, to evaluate the project as a 36-unit recreational home development without the Country Inn

The purpose of this Addendum #2 is to analyze the traffic impact of the site as if it were a typical 36-unit residential condominium project. It was previously proposed and analyzed as a recreational home development.

1.0 Assessment

The proposed project was previously analyzed as 36 Recreational Homes (ITE land use code (LUC) 260), which was addressed in the *Traffic Impact Analysis Addendum #1* letter report prepared by CM dated November 30, 2018. This Addendum #2 analyzes the 36 residential units as standard Multifamily Housing (Low-Rise (LUC 220)) condominiums.

Access to the site will remain as previously analyzed, which includes reutilization and improvements to the existing driveways on Ackert Hook Road.

The rate of trips generated per condominium unit was calculated and applied to full build-out of the site. The new trip generation estimates are summarized in Table 1, as compared to the previously analyzed land use (Addendum #1) and the former *Daytop* residential drug treatment facility.

Table 1 – Trip Generation Summary Comparison

Land Use	Friday PM Peak Hour		
	Enter	Exit	Total
Former Site Traffic			
Drug Treatment Facility	3	6	9
Previous Analysis of Site Traffic (November 30, 2018 Addendum #1)			
36 Condominiums (Recreational Homes)	24	16	40
Difference Between Former and Previous Analysis	+21	+10	+31
Current Analysis of Site Traffic (This Addendum #2)			
36 Condominiums (Multifamily Housing – Low-Rise)	15	9	24
Difference Between Former and Current Analysis	+12	+3	+15
<i>Difference Between Previous Analysis and Current Analysis</i>	<i>-9</i>	<i>-7</i>	<i>-16</i>

The trip generation summary shown in Table 1 indicates that the proposed project would generate 24 total trips during the Friday PM peak hour (15 entering and 9 exiting) when evaluated as a Multifamily Housing development. This is 16 fewer trips during the Friday PM peak hour when compared to the previous analysis of the proposed project as a Recreational Home development.

It is noted that, per the *ITE Trip Generation* manual, trips generated by Recreational Homes typically peak specifically during the Friday PM peak hour, and do not necessarily generate as many trips during an average weekday (Tuesday through Thursday) PM peak hour. Multifamily Housing units, however, typically generate a more consistent number of trips during the PM peak hour regardless of the given weekday. The difference in the Friday PM vs. average weekday PM peak trip generation for both uses is shown in Table 2.

Table 2 – Land Use and Peak Hour Trip Generation Comparison

Land Use	Average Weekday PM Peak Hour			Friday PM Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total
36 Condominiums (Recreational Homes)	4	6	10	24	16	40
36 Condominiums (Multifamily Housing – Low-Rise)	15	9	24	15	9	24
Difference Between Project Evaluated as Recreational Homes and Multifamily Housing	+11	+3	+14	-9	-7	-16

The trip generation summary shown in Table 2 shows that recreational homes peak on Fridays with less traffic during the week. Traditional condominiums generate traffic more consistently throughout the week. The previous traffic analysis analyzed the worst-case conditions (40 trips during the Friday peak hour). This Addendum #2 analyzes less traffic, but it will occur more frequently (24 trips, five evening peaks per week).

Traffic Operations

Intersection Level of Service (LOS) and capacity analysis relate traffic volumes to the physical characteristics of an intersection. Intersection evaluations were made using the Synchro 10 software, which automates the procedures contained in the *Highway Capacity Manual*. Levels of service range from A to F with LOS A considered excellent with very little delay while LOS F represents conditions with very long delays. Table 3 shows the results of the updated Level of Service and delay calculations as compared to both the existing and previous analysis.

Table 3 – Level of Service Summary Comparison

Intersection	Control	Friday PM Peak Hour		
		Existing	Build – Addendum #1	Build – Addendum #2
Primrose Hill Road/Ackert Hook Road	U			
Primrose Hill Road EB L		A (7.2)	A (7.3)	A (7.3)
Primrose Hill Road WB L		A (7.2)	A (7.2)	A (7.2)
Ackert Hook Road NB LTR		A (9.0)	A (9.1)	A (9.1)
Ackert Hook Road SB LTR		A (9.1)	A (9.1)	A (9.0)
Ackert Hook Road/Ackert Hook Road Extension	U			
Ackert Hook Road Extension EB LR		A (8.6)	A (8.8)	A (8.7)
Ackert Hook Road NB L		A (0.7)	A (0.3)	A (0.3)
Primrose Hill Road/Ackert Hook Road Extension	U			
Primrose Hill Road EB L		A (7.3)	A (7.3)	A (7.3)
Ackert Hook Road Extension SB LR		A (8.5)	A (8.5)	A (8.5)
Primrose Hill Road/Haggerty Hill Road	U			
Primrose Hill Road EB L		A (7.2)	A (7.2)	A (7.2)
Haggerty Hill Road East Leg SB L		A (8.6)	A (8.7)	A (8.6)
Haggerty Hill Road West Leg SB R		A (8.3)	A (8.3)	A (8.3)
Haggerty Hill Road West Leg EB L		A (8.6)	A (8.7)	A (8.7)
US Route 9/Haggerty Hill Road	U			
Haggerty Hill Road WB LR		B (10.6)	B (10.5)	B (10.6)
US Route 9 SB L		A (8.2)	A (8.2)	A (8.2)
Ackert Hook Road/Site Driveway	U			
Site Driveway EB LR		--	A (8.6)	A (8.5)
Ackert Hook Road NB L		--	A (7.3)	A (7.2)

Key: X (Y.Y) = Level of Service (Delay, seconds per vehicle).

U = Unsignalized intersections.

NB, SB, WB, EB = Northbound, Southbound, Westbound, Eastbound intersection approaches.

LTR = Left-turn, through, and/or right-turn movements

Table 3 shows that there will be no change in level of service on any intersection movement with the evaluation of the proposed project as a Multifamily Housing development, with an average vehicle delay change of one-tenth of a second \pm on any movement. Consistent with the Addendum #1, no site-specific geometric mitigation is needed at any of these locations.

A review of the traffic volume data collected for the project, (April 20, 2018 *Traffic Impact Analysis* letter) indicates that the existing average weekday (Tuesday through Thursday) PM peak hour traffic volumes throughout the study area are comparable to the existing Friday PM peak hour traffic volumes. Therefore, given that the proposed project would be expected to generate approximately the same amount of trips during both the average weekday PM peak hour and the Friday PM peak hour if it were a Multifamily Housing development, the average Friday PM peak analysis herein, is representative of average weekday PM peak hour levels of service.

Roadway Assessment

Recognizing that the level-of-service analysis shows no traffic impact based on accepted traffic engineering methodologies, and because of neighborhood traffic concerns, an additional qualitative assessment was completed to assess livability and quality of life traffic impacts. As described in the April 20, 2018 *Traffic Impact Analysis* letter provided for the original analysis

of the proposed project, the study area roadways are environmentally rated as “Good” to “Excellent” for residential roads. Table 4 summarizes the results of the roadway segment traffic volume assessment for the previous condition (Addendum #1) and the updated condition (Addendum #2).

Table 4 – Build Condition Daily Volume Summary Comparison

Location	K* Factor	Site Generated Traffic (vehicles)		Daily Segment Volumes (vehicles)		
		PM Peak Hour Trips – Addendum #2	Daily Volume – Update	Existing Conditions	Build Condition – Addendum #1	Build Condition – Addendum #2
1. Haggerty Hill Rd 750 ft west of Primrose Hill Rd	0.09	8	90	275	420	365
2. Primrose Hill Rd 250 ft east of Haggerty Hill Rd	0.08	9	115	390	580	505
3. Ackert Hook Rd 600 ft south of Primrose Hill Rd	0.05	1	20	185	225	205
4. Primrose Hill Rd 1,100 ft east of Ackert Hook Rd	0.07	8	115	455	640	570
5. Ackert Hook Rd 350 ft north of Springwood Dr	0.09	18	200	215	550	415

* “K factor” is the proportion of annual average daily traffic (AADT) occurring during the peak hour.


Based on the environmental rating threshold volumes outlined in the April 20, 2018 *Traffic Impact Analysis*, the segment of Primrose Hill Road east of Ackert Hook Road will see an improvement in environmental rating from “Acceptable” under the previously analyzed condition to “Good” as a result of this analysis. This is due to the decrease in the peak hour volumes as a result of evaluating the proposed project as a typical residential development instead of as a recreational home development. All other study area roadway segments will see no additional change in environmental rating as compared to the previous analysis.


2.0 Conclusions

This Addendum #2 assesses the traffic impacts of the proposed project as if it were a typical 36-unit full-time residential condominium development. The proposed project would generate sixteen (16) fewer peak hour trips as a full-time residential development during the Friday PM peak hour than the previous analysis, while generating fourteen (14) more peak hour trips during the average weekday PM peak hour. The previous conclusions remain valid - None of the study area intersections will experience any change in level of service as a result of the proposed project, and all study area roadway segments will maintain an environmental rating of “Acceptable” or better under any of the analyzed conditions.

If you have any questions regarding the above analysis, please feel free to contact our office.

Respectfully submitted,
Creighton Manning Engineering, LLP


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