

January 17, 2019

Mr. John Konior, Chairman
Town of Kingston Planning Board
906 Sawkill Road
Kingston, NY 12401

RE: Response to Crawford & Associates Comments on 850 Route 28, LLC, T/o Kingston; Ulster County; CM Project 118-207

Dear Mr. Konior:

Creighton Manning Engineering, LLP (CM) has reviewed the comments provided by Crawford & Associates Engineering, dated December 11, 2018 regarding the proposed 850 Route 28, LLC project in the Town of Kingston. Below is a summary of the *Traffic Report* comments and our responses.

Comment #1: "Page 3 of 7 of the Creighton Manning Traffic Assessment, provides a Peak Hour Trip Generation chart to summarize the traffic volumes entering and exiting the site at the AM and PM peak hour. It is understood that Phase 1 will be completed and that the facility will begin to operate while the Phase 2 site work commences. However, page 6 of 7 provides estimated truckloads of blasted/excavated material to be approximately 16 to 20 trips per hour. The applicant should provide some clarification on the expected impact to traffic flows when Phase 2 is in construction and the facility is operating."

Response: The traffic analysis made conservative assumptions and overlapped several operations with the peak hour traffic volumes on Route 28. These assumptions provide a worst-case analysis that more than accounts for the completion of Building 1 and the construction activity of Building 2. The two attached charts have been prepared to illustrate the analysis completed and compare it to the actual expected operations at full buildout and at the completion of Building 1, with Building 2 under construction.

Chart 1 illustrates the distribution of traffic volumes on Route 28 over the course of an average day as a percentage of the daily volume. For example, the morning peak hour volume on Route 28 is about 7% of the daily volume and occurs between 8 and 9 a.m., while the afternoon peak hour is about 8.5% and occurs between 4 and 5 p.m. The shape of this line distinctly show volumes increase in the morning and decrease in the evening with morning and afternoon peaks. The analyzed trip generation (68 AM trips, 53 PM trips) assumed several activities coincide with the morning and afternoon traffic volumes peaks to represent a worst-case analysis. Chart 1 also illustrates the actual expected trip generation for the site with both buildings operational. The day shift arrives before the night shift departs, both occurring before the peak of Route 28, when traffic volumes are less than half of the morning peak. The office workers arrive during the morning peak, but depart at or slightly later than the afternoon peak. Day shift and night shift depart/arrive, well after the afternoon peak on Route 28 when traffic volumes are about 40 to 90% less. Daytime trips (7 a.m. to 6 p.m.) average about 7 trips per hour.

Chart 2 illustrates the completion of Building 1, where employees and deliveries is approximately half of full build, but day time trips average around 18 trips per hour due to

the removal of material for the construction of Building 2. Although daytime traffic to/from the site peaks at about 25 trips (8 to 9 a.m.), this peak is significantly less than the analyzed peak of 68 trips; therefore, we believe that the phased buildout of Buildings 1 and 2 will not be any worse than the conservatively analyzed peak conditions of full buildout.

Comment #2: "Page 5 of 7; the traffic assessment determined the 85th percentile speed to be 58 mph however the design speed reference was only 55 mph. The applicant should clarify why the design speed of 55 mph was used."

Response: This segment of Route 28 is posted at 45 mph, for which most drivers (96%) were observed exceeding the speed limit. The State Maximum Speed Limit is 55 mph (with some exceptions like the Thruway). However, approximately 31% of drivers are exceeding the state maximum; therefore, 55 mph was used as the reasonable limit, without catering to the drivers going 13 or more mph over the posted speed limit. Regardless, Table 1 reflects the sight distance recommendations at 58 mph.

The sight distance update indicates that passenger cars and single unit trucks will still be adequately accommodated. The sight distance looking left for a tractor-trailer to turn left out will be 75 feet short of recommended; however, this does not mean that tractor-trailers cannot be accommodated. The available distance looking left is adequate for vehicle speeds of 54 mph, 9 mph over the speed limit. If a truck pulled out onto Route 28, the northbound vehicle going 58 mph, may have to decelerate slightly. Since sight distance well exceeds stopping sight distance, even if the truck stalled in the road, northbound drivers have plenty of distance to stop; therefore, the available sight distance looking left is considered adequate.

Comment #3: "Page 5 of 7; Table 3- Sight Distance Summary, it appears that the values for recommended sight distances did not account for grade adjustment factors per the American Association of State Highway Transportation Officials (AASHTO) guidelines present in "A Policy on Geometric Design of Highways and Streets 2011". The applicant should review and revise as needed. It is noted that the majority of the available sight distances exceed the AASHTO standard recommended for passenger cars; however there are a number of distances for Trucks and Tractor Trailers that are approaching or exceeding the recommended values."

Response: The southbound approach of Route 28 is relatively flat in the 500 feet approaching the site driveway; therefore, no grade adjustments were applied. In the northbound direction, there is an average downgrade of about 3% approaching the site driveway; therefore, the northbound stopping sight distance was increased accordingly and reflected in Table 1. The available sight distance still exceeds the recommended stopping sight distances.

Comment #4: "Page 6 of 7 and 7 of 7 both reference removal of vegetation on the North side of the entrance. Removal of the vegetation would be within the NYS DEC wetland/100' adjacent area and may require permitting. If the vegetation is not to be removed, the applicant should revise the sight distance values as appropriate."

Response: The vegetation limits passenger car sight distance to about 300 feet and truck

sight distance to about 900 feet because truck drivers can see over some of the vegetation. We suggest the applicant investigate cutting the taller vegetation within the wetland (about 200-300 SF) down to below 3 feet, without disturbing the ground. Occasional maintenance to ensure adequate sight lines would be the applicant's responsibility.

Table 1 – Sight Distance Summary (feet) – 58 mph

Intersection		Intersection Sight Distance ¹				Stopping Sight Distance ²	
		Right Turn from Driveway	Left Turns from Driveway		Left-Turn from NY Route 28 (D _s)	SSD _{NB}	SSD _{SB}
		Left (D _L)	Left (D _L)	Right (D _R)			
NY Route 28/ Site Dwy	Available for Passenger Cars	920	920	1100+	800	870	1075+
	Recommended for Passenger Cars	555	685	685	515	525*	495
	Available for Trucks	970	970	1100+	800	870	1075+
	Recommended for Single Unit Trucks	725	870	870	615	525*	495
Tractor-trailers	900	1045	1045	700			

¹ Intersection sight distance is measured 14.5 feet back from the travel way at an object height of 3.5 feet and an eye height of 3.5 feet for a passenger car and 7.5 feet for heavy vehicles.

² Stopping sight distance measured for a 2-foot object located in the path of northbound and southbound vehicles on Rt 28 at an eye height of 3.5 feet.

* Adjusted to account for -3% grade.

Please call our office if you have any questions or comments regarding the above responses.

Respectfully submitted,
Creighton Manning Engineering, LLP



Kenneth Wersted, P.E., PTOE
 Associate

Attachments

C: Barry Medenbach – M&E

Chart 1 - Expected vs Analyzed Traffic Volumes
 Building #1 and #2 Operational

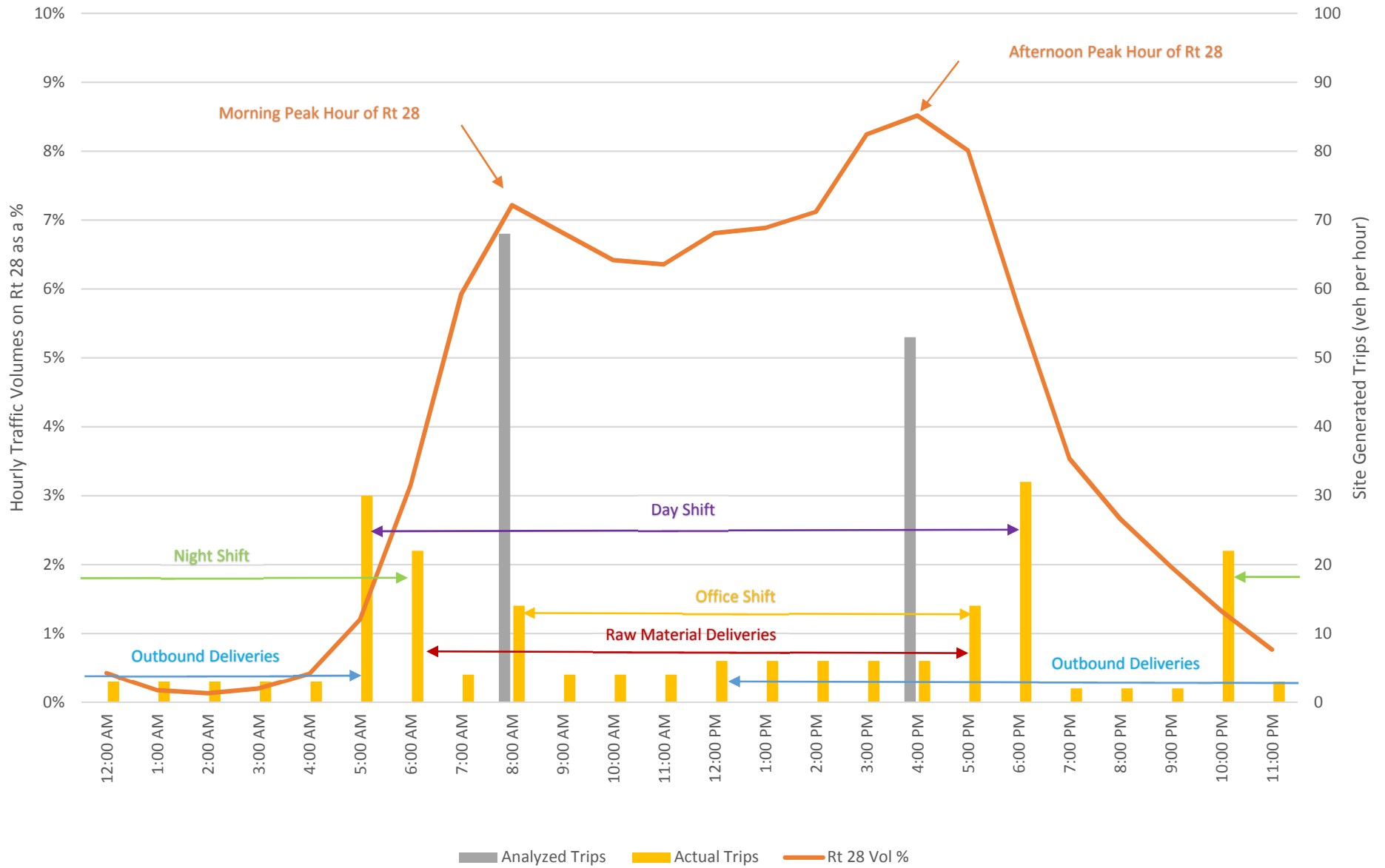


Chart 2 - Expected vs Analyzed Traffic Volumes
 Building #1 Operating, Building #2 Under Construction

