MMM Group Limited
100 Commerce Valley Drive West,
Thornhill, Ontario, L3T 0A1
t: 905.882.1100 | f: 905.882.0055

www.mmm.ca

April 4, 2014
16-13083-001-T01

Mr. Ken Dantzer
Riviyra Developments Inc.
P.O. Box 70
Glenburnie, ON K0H 1S0

Dear Mr. Dantzer:

Subject: Traffic Impact Study Addendum Letter
Proposed Condominium Development
129 South Street, Town of Gananoque

MMM Group Limited (MMM) is pleased to provide this addendum letter in response to the comments received from Michael Touw, Director of Public Works for the Town of Gananoque, with respect to our Traffic Impact Study (TIS) dated October 15, 2013 for your proposed development to be located at 129 South Street. Mr. Touw, while generally in agreement with the findings of the report, has expressed concerns that the date of the counts conducted for the TIS do not capture the "worst-case" period of travel, which typically occurs during the summer months. As a result, a re-examination of the traffic analyses must be undertaken to incorporate the Ministry of Transportation of Ontario's (MTO) Seasonal Variation Curve for "High Tourist" traffic. This will be investigated further in the following letter.

Furthermore, it is our understanding that since the submission of our TIS, a reduction in the total unit count for the proposed development has been requested to satisfy the Town. The original unit count of 102 has been lowered to 100 but there have been no other changes to the site plan, including the parking supply, access/egress arrangements or garbage/loading area. As a result, the only changes to our original report consist of the technical analyses, and these updated results are addressed in this letter.

ORIGINAL TECHNICAL ANALYSES

For contextual purposes, the following **Tables 1** through **3** illustrate the existing, future background and total future traffic conditions, respectively, that were presented in our original traffic impact study. The original commentary on each condition is also provided.

TABLE 1
EXISTING TRAFFIC CONDITIONS

Intersection	Control Type	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
		LOS (Delay in seconds)	Critical Movement(s) (v/c)	LOS (Delay in seconds)	Critical Movement(s) (v/c)
South Street at Stone Street South	Unsignalized	A (7.9)	--	A (6.7)	--
Stone Street South at Water Street	Unsignalized	A (4.6)	--	A (4.7)	--
King Street East at Stone Street South	Signalized	C (20.9)	--	B (19.5)	--
King Street East at Charles Street South	Signalized	B (11.6)	--	B (12.3)	--
King Street East at William Street South	Signalized	A (9.7)	--	B (10.6)	--

Notes: 1. The LOS at an unsignalized intersection is defined by the movement with the highest delay under HCM 2000.
2. Critical movements are those with a volume-to-capacity ratio exceeding 0.80 for a signalized intersection or with a LOS of 'D', 'E' or 'F'

Under existing conditions, the study area intersections operate at LOS C or better, indicating that there are low delays at these intersections. No operational issues are noted from the results of the traffic analysis.

TABLE 2
FUTURE BACKGROUND TRAFFIC CONDITIONS

Intersection	Control Type	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
		LOS (Delay in seconds)	Critical Movement(s) (v/c)	LOS (Delay in seconds)	Critical Movement(s) (v/c)
South Street at Stone Street South	Unsignalized	A (7.9)	--	A (6.4)	--
Stone Street South at Water Street	Unsignalized	A (4.7)	--	A (4.8)	--
King Street East at Stone Street South	Signalized	C (21.2)	--	B (20.0)	--
King Street East at Charles Street South	Signalized	B (11.8)	--	B (12.7)	--
King Street East at William Street South	Signalized	A (9.8)	--	B (10.9)	--

Notes: 1. The LOS at an unsignalized intersection is defined by the movement with the highest delay under HCM 2000.
2. Critical movements are those with a volume-to-capacity ratio exceeding 0.80 for a signalized intersection or with a LOS of 'D', 'E' or 'F'

The future background traffic conditions remain largely unchanged from the existing traffic conditions, with delays increasing by a very small amount. As a result, the future background scenario is expected to continue to operate well during both peak hours.

TABLE 3
TOTAL FUTURE TRAFFIC CONDITIONS

Intersection	Control Type	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
		LOS (Delay in seconds)	Critical Movement(s) (v/c)	LOS (Delay in seconds)	Critical Movement(s) (v/c)
South Street at Stone Street South	Unsignalized	A (8.3)	--	A (7.4)	--
Stone Street South at Water Street	Unsignalized	A (2.9)	--	A (3.2)	--
King Street East at Stone Street South	Signalized	C (21.3)	--	C (20.6)	--
King Street East at Charles Street South	Signalized	B (11.4)	--	C (12.9)	--
King Street East at William Street South	Signalized	A (9.8)	--	B (11.2)	--

Notes: 1. The LOS at an unsignalized intersection is defined by the movement with the highest delay under HCM 2000.
2. Critical movements are those with a volume-to-capacity ratio exceeding 0.80 for a signalized intersection or with a LOS of 'D', 'E' or 'F'

The addition of the site generated traffic has resulted in very marginal impacts on the study area network. All of the intersections are expected to operate at virtually the same level of service compared to future background conditions, with the estimated increase in delay expected to be, at most, 1.6 seconds per vehicle. As a result, the development can be readily accommodated by the existing road network with no improvements necessary.

UPDATED TECHNICAL ANALYSES

As noted earlier, Mr. Touw requested that MTO's Seasonal Variation Curve for "High Tourist" volumes be applied to the traffic volumes at the King Street and Stone Street intersection in our original report to account for the summer months when traffic conditions tend to be higher in Gananoque. However, upon reviewing the 1998-2010 Traffic Volumes for Provincial Highways document prepared by MTO, we would suggest that the "Intermediate Recreation" curve would be more appropriate for this area. In our opinion, this curve is more appropriate since MTO counting stations in this area (Highway 401 at Highway 2 plus Highway 401 at Highway 32) are represented by these curves. As a result, we have updated the through volumes on King Street based on the factors derived from this curve. The subsequently updated analyses for the existing, future background and total future traffic conditions are presented in **Tables 4** to **6**, respectively.

TABLE 4
EXISTING TRAFFIC CONDITIONS

Intersection	Control Type	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
		LOS (Delay in seconds)	Critical Movement(s) (v/c)	LOS (Delay in seconds)	Critical Movement(s) (v/c)
King Street East at Stone Street South	Signalized	C (22.0)	--	C (21.6)	--

Notes: 1. The LOS at an unsignalized intersection is defined by the movement with the highest delay under HCM 2000.
2. Critical movements are those with a volume-to-capacity ratio exceeding 0.80 for a signalized intersection or with a LOS of 'D', 'E' or 'F'

TABLE 5
FUTURE BACKGROUND TRAFFIC CONDITIONS

Intersection	Control Type	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
		LOS (Delay in seconds)	Critical Movement(s) (v/c)	LOS (Delay in seconds)	Critical Movement(s) (v/c)
King Street East at Stone Street South	Signalized	C (22.3)	--	C (22.2)	--

Notes: 1. The LOS at an unsignalized intersection is defined by the movement with the highest delay under HCM 2000.
2. Critical movements are those with a volume-to-capacity ratio exceeding 0.80 for a signalized intersection or with a LOS of 'D', 'E' or 'F'

TABLE 6
TOTAL FUTURE TRAFFIC CONDITIONS

Intersection	Control Type	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
		LOS (Delay in seconds)	Critical Movement(s) (v/c)	LOS (Delay in seconds)	Critical Movement(s) (v/c)
King Street East at Stone Street South	Signalized	C (22.2)	--	C (22.5)	--

Notes: 1. The LOS at an unsignalized intersection is defined by the movement with the highest delay under HCM 2000.
2. Critical movements are those with a volume-to-capacity ratio exceeding 0.80 for a signalized intersection or with a LOS of 'D', 'E' or 'F'

The addition of the Seasonal Curve Variation adjustments has resulted in very marginal impacts at the King Street East/Stone Street South intersection. While this intersection now operates at LOS C under existing conditions (previously LOS B during the p.m. peak hour), it is still operating with low delays and is, therefore, acceptable. The intersection also operates at the same LOS under future

background and total future conditions. Accordingly, the study area network is able to accommodate the site-generated traffic while accounting for seasonal recreational traffic.

CONCLUSIONS

Based on the information in Tables 4 to 6, the application of the MTO's "Intermediate Recreation" Seasonal Variation Curve shows that the LOS at the intersections on King Street East for the existing, future background and total future traffic conditions is acceptable. The additional traffic as a result of seasonal adjustments generates marginal impacts and the intersections along King Street East continue to operate under similar conditions, without requiring any road network improvements.

We trust that the above information sufficiently addresses Mr. Touw's concerns, but please do not hesitate to contact me directly at 905-882-7302 if you have any questions or comments.

Yours very truly,

MMM GROUP LIMITED

David B. Richardson, P.Eng., PTOE
Senior Project Manager & Partner
Transportation Planning

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