



Ref.: 13060

November 17, 2015

Aaron Clausen, Planning Director
Beverly Planning Department
191 Cabot Street
Beverly, MA 01915

Reg.: Modified Site Access
North Shore Crossing, Beverly, MA

Dear Mr. Clausen:

Ron Müller & Associates (RMA) has prepared this letter to document the site access changes required as a result of Massachusetts Department of Transportation (MassDOT) review of the North Shore Crossing project and the resulting traffic impacts on the roadways adjacent to the site. As described in this letter, the modifications do not change how site traffic will enter the site. Only exiting site traffic will be affected by the modification and this will only affect traffic operations at the Sohier Road driveway and at the new roundabout at Sohier Road and the Connector Road. As documented in this letter, both locations will continue to operate at desirable levels of service.

Over the past several months, the applicant has worked diligently with MassDOT and submitted a detailed access alternatives analysis that evaluated five different driveway and traffic control options, including potential traffic signal and roundabout control at the Brimbal Avenue driveway. This alternatives analysis demonstrated that the preferred alternative as approved by the Beverly Planning Board (access and egress on all three abutting roadways) would produce desirable traffic operations. However, MassDOT expressed concern about right turns onto the Connector Road. In response to numerous meetings and discussions with MassDOT, it was conceptually agreed that the proposed Connector Road driveway would allow only right turns into the site and that the right-turn out movement would be limited to Whole Foods trucks only, as there is no other viable option to allow Whole Foods trucks to exit the site.

The site plan has accordingly been revised. Shopping center customers will no longer exit onto the Connector Road and a gate has been added at this location to assure that only Whole Foods

trucks can use this exit. In addition to this modification and at the request of MassDOT, the Connector Road driveway has been shifted approximately 50 feet to the east to create greater separation from the Sohier Road roundabout and allow longer decision time for motorists traveling between the roundabout and the shopping center entrance.

In addition, at the request of MassDOT, the right-turn radius on the Sohier Road northbound approach to the new roundabout will be tightened to reduce vehicle speeds entering the roundabout. A conceptual plan of this modification is enclosed with this letter. Independent of the proposed North Shore Crossing development, this modification is an improvement over the current design as it lowers the speed of traffic entering the roundabout. Based on discussions with the city's engineering consultant for the interchange improvement project, construction of the Sohier Road roundabout will not be completed until spring of 2016. This modification can therefore be incorporated into the interchange project as a minor design change prior to construction and should not result in an increase in the cost of the project.

To determine the effect that the elimination of right-turns onto the Connector Road will have on traffic operations, additional capacity analyses were performed at the two locations impacted by this change: 1) the Sohier Road roundabout and 2) the proposed site driveway at Sohier Road. As mentioned previously, the driveway changes will not affect entering site traffic. However, the site traffic that was previously expected to exit onto the Connector Road will now use the Sohier Road driveway and make a right turn onto Sohier Road and another right turn onto the Connector Road at the new roundabout. No other area roadways including Sohier Road south of the site or Brimbal Avenue will be affected by this change.

The results of this change and a comparison to the Beverly-approved traffic operations at these locations are shown in Table 1. The Beverly-approved traffic operations are based on the Response to Traffic Peer Review Comments letter submitted by RMA to the city on December 10, 2014 and the MassDOT recommended traffic operations are based on the Draft Environmental Impact Report submitted to the Massachusetts Environmental Policy Act (MEPA) office on November 16, 2015.

As shown by this comparison, the Sohier Road roundabout is expected to operate at a desirable level-of-service (LOS) A under all conditions, regardless of the access assumptions. With the MassDOT recommended access design, vehicle queues for the Sohier Road northbound right turn movement onto the Connector Road increase somewhat to 132 feet as a result of the additional site traffic on this approach, but the movement still operates at LOS A. The modified design as shown on the enclosed conceptual plan provides for 150 feet of two-lane storage and can easily accommodate this queue. The site driveway approach to Sohier Road will also operate at acceptable levels (LOS B to C) during the peak hours. The additional delays incurred at this intersection occur on the site driveway and will not affect traffic flow on Sohier Road.

Table 1
Level-of-Service Analysis Summary

Location/Peak Hour	2022 No-Build				2022 Build Access as Approved by Planning Board				2022 Build Access as Modified By MassDOT				
	Movement	v/c ^a	Del. ^b	LOS ^c	Queue ^d	v/c	Del.	LOS	Queue	v/c	Del.	LOS	Queue
Sohier Rd. at Route 128 NB Ramps & Connector Rd.													
<i>Weekday AM Peak</i>													
WB Left	0.30	9.2	A	56	0.30	9.3	A	57	0.30	9.3	A	57	
WB Right	0.12	4.6	A	18	0.12	4.8	A	18	0.12	4.7	A	18	
NB Thru	0.19	7.7	A	29	0.21	15.5	C	34	0.21	15.6	C	33	
NB Right	0.32	7.0	A	60	0.34	7.3	A	62	0.36	8.0	A	68	
SB Left	0.52	12.5	B	104	0.55	12.9	B	119	0.54	12.7	B	113	
SB Thru	0.27	4.0	A	0	0.27	4.0	A	0	0.27	4.0	A	0	
Overall	---	8.1	A	---	--	8.4	A	--	---	8.3	A	---	
<i>Weekday PM Peak</i>													
WB Left	0.22	10.1	B	36	0.24	10.6	B	40	0.23	10.5	B	39	
WB Right	0.24	4.8	A	41	0.25	5.2	A	44	0.25	5.1	A	44	
NB Thru	0.32	7.0	A	55	0.42	15.4	C	78	0.43	15.9	C	80	
NB Right	0.38	6.9	A	69	0.41	7.5	A	77	0.55	9.3	A	132	
SB Left	0.43	11.1	B	82	0.50	11.4	B	100	0.48	11.4	B	96	
SB Thru	0.15	4.0	A	0	0.15	4.0	A	0	0.15	4.0	A	0	
Overall	---	7.7	A	---	--	8.3	A	--	--	8.7	A	--	
<i>Sat. Midday Peak</i>													
WB Left	0.17	9.3	A	26	0.18	9.8	A	29	0.18	9.8	A	29	
WB Right	0.13	4.3	A	19	0.14	4.9	A	22	0.14	4.9	A	22	
NB Thru	0.17	5.2	A	26	0.25	13.1	B	42	0.29	13.9	B	47	
NB Right	0.22	5.2	A	35	0.26	6.2	A	43	0.41	6.3	A	77	
SB Left	0.27	10.7	B	42	0.35	11.1	B	60	0.35	11.0	B	58	
SB Thru	0.09	3.9	A	0	0.09	3.9	A	0	0.09	3.9	A	0	
Overall	---	7.1	A	---	--	7.9	A	--	---	7.8	A	---	
Sohier Road at Site Driveway													
<i>Weekday AM Peak</i>													
WB Right	--	--	--	--	0.03	10.4	B	3	0.06	10.7	B	5	
<i>Weekday PM Peak</i>													
WB Right	--	--	--	--	0.12	10.9	B	10	0.37	15.9	C	43	
<i>Sat. Midday Peak</i>													
WB Right	--	--	--	--	0.16	11.2	B	15	0.40	14.0	B	48	

^a Volume-to-capacity ratio

^b Average control delay in seconds per vehicle

^c Level of service

^d 95th percentile queue in feet, assuming 25 feet per vehicle

In summary, the site access changes required by MassDOT only affect the short section of Sohier Road between the proposed site driveway and the new Sohier Road roundabout at the Connector Road. No other roadways will be affected by this change. The MassDOT modifications will result in more vehicles using the Sohier Road driveway; however, the increased volume can easily be accommodated at this driveway and at the new Sohier Road roundabout with acceptable levels of service. The elimination of vehicles exiting directly onto the Connector Road will also result in safer and more efficient operations on the Connector Road.

Please feel free to contact me should you have any questions regarding this evaluation.

Sincerely,

Ron Müller & Associates



Ronald Müller, P.E.
Principal

Enclosure

cc: Steve Cohen, CEA Beverly LLC
Ron Golub, CEA Beverly LLC

