Transportation
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Memorandum

To: Hans Larsen
Director of General Government
Town of Wellesley
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Wellesley, MA 02482

Date: November 20, 2009

Project No.: 09733.26

From: Patrick Dunford, P.E.
Project Manager

Jason DeGray, P.E. PTOE
Traffic Engineer

Re: **Response to 09/15/09 Peer Review Comments**
Proposed CVS Pharmacy #1254
980 Worcester Turnpike (Route 9)
Wellesley, Massachusetts

INTRODUCTION

Vanasse Hangen Brustlin, Inc. (VHB) has prepared the following written responses to the BETA Group, Inc (BETA) peer review comment letter dated September 15, 2009. The contents of the peer review were also discussed at meetings attend by VHB, BETA and representatives of the Town of Wellesley on September 21, 2009 and October 29, 2009. The subject of the BETA peer review letter is the August 2009 Traffic Impact and Access Study prepared by VHB for the proposed CVS Pharmacy in Wellesley, Massachusetts (Project). The project site is located on the southern side of the Worcester Street (Route 9) /Overbrook Drive intersection in Wellesley, Massachusetts. The project will consist of redeveloping the former auto dealership site as a new 12,900 square-foot CVS Pharmacy (including a 1,693 square foot non-sales mezzanine area) featuring a dual drive-through operation along with accompanying parking and landscaped areas.

A copy of the BETA Peer Review letter is included in the attachments to this document. For ease of reference, each of the findings of the BETA letter is repeated below, followed by the response.

Comment 1:

…the traffic study area for the CVS project should be expanded to include the Oak St / Route 9 intersection as well. The two intersections of Oak St / Route 9 and Overbrook Rd / Route 9 should be analyzed as one signal system.

Response:

The Route 9/Oak Street intersection is located in Natick approximately 1,900 feet to the west of Overbrook Drive and is currently planned to be reconstructed by MassHighway. Design plans for this work have been advanced to the 25% level by the traffic consultant for that project (AECOMM). VHB

has reviewed a copy of the August 2009 Functional Design Report[1] for this project, which involves the complete reconstruction of the Route 9/Oak Street intersection. VHB is also the design consultant for the nearby MathWorks project on Route 9 in Natick. As mitigation for the MathWorks project, interim improvements will be implemented at the Route 9/Oak Street intersection. These measures will include striping and signage changes, a new signal controller assembly, a new emergency vehicle preemption system and adjustments to the signal timing and operation in conjunction with its planned coordination with a new U-turn signal further to the west on Route 9. With both of these projects being in varying stages of design, VHB has revised the capacity analysis for the Route 9/Overbrook Drive intersection to reflect the future coordinated operation as discussed below.

VHB has evaluated two configurations of a future Route 9 signal system including both Oak Street and Overbrook Drive. Under existing conditions these signalized intersections are uncoordinated. The Route 9/Oak Street intersection consists of two separate signalized intersections operated by a single traffic signal controller and Route 9/Overbrook Drive functions as an isolated intersection. As mitigation for the mixed-used project under construction at the adjacent Wellesley Travel Inn site the Route 9/Overbrook Drive intersection will be coordinated with the Route 9/Oak Street intersection. Accordingly, the No-Build and Build analysis was conducting with the planned coordination already having been implemented between Route 9/Overbrook Drive and the Route 9/Oak Street intersection in its interim condition prior to the full reconstruction project. Independent of that project, the Route 9/Oak Street intersection is already planned to be reconstructed as noted above. The project consists of consolidating the Oak Street intersection to one signalized location while also providing coordination with the Route 9/Overbrook Drive intersection. Accordingly, a second Build scenario was also considered assuming that the Route 9/Overbrook Drive intersection was coordinated with the completely reconstructed Route 9/Oak Street intersection. While neither Route 9/Oak Street scenario involves physical changes to the Route 9/Overbrook intersection, there would be different signal cycle lengths, signal timings and coordination plans depending on which scenario is considered.

As noted later in the document, the trip generation estimates for the proposed CVS have been updated to reflect empirical trip generation data collected at two nearby CVS stores as suggested by BETA. Accordingly, the Build condition analysis presented in Table 1 was conducted using the updated trip generation estimates developed for this exercise, which are discussed in detail in the Response to Comment 10 later in this document.

[1] Functional Design Report – Intersection Redesign for Route 9 (Worcester Road)/Oak Street/Rhode Island Avenue, Natick, MA; AECOM Technical Services; August 2009.

Table 1
Worcester Street (Route 9)/ Oak Street/ Overbrook Drive Signal System
Capacity Analysis Summary

	2013 No-Build Condition (without complete Oak Street reconstruction)					2013 Build Condition (without complete Oak Street reconstruction)					2013 Build Condition (with complete Oak Street reconstruction)				
	V/C [a]	Delay [b]	LOS [c]	Avg[d]	95th[e]	V/C	Delay	LOS	Avg	95th	V/C	Delay	LOS	Avg	95th
Worcester Street (Route 9) at Overbrook Drive/Site Drive															
Weekday Evening															
Route 9 EB LT/UT	0.86	83	F	128	m119	0.96	94	F	122	m114	0.83	80	F	104	m119
Route 9 EB TR	0.92	3	A	125	m112	0.98	32	C	146	m178	1.02	35	D	~374	m#442
Route 9 WB LT/UT	0.84	109	F	91	#201	0.99	139	F	151	#303	0.96	114	F	~126	#263
Route 9 WB TR	0.95	30	C	1,014	#1,190	0.94	29	C	982	1,141	1.00	38	D	~891	#1,130
CVS NB LT	N/A	N/A	N/A	N/A	N/A	0.52	64	E	50	101	0.50	50	D	38	83
CVS NB R	N/A	N/A	N/A	N/A	N/A	0.23	57	E	47	92	0.22	45	D	37	76
Overbrook Dr. SB LTR	0.90	97	F	193	#357	0.93	106	F	195	#372	0.87	78	E	144	#291
Overall	0.96	24	C			0.97	39	D			0.99	42	D		
Saturday Midday															
Route 9 EB LT/UT	0.89	109	F	167	m#250	0.90	106	F	180	#328	0.84	87	F	146	m#279
Route 9 EB TR	0.76	13	B	881	m997	0.83	20	B	745	857	0.89	14	B	294	257
Route 9 WB LT/UT	0.65	74	E	108	176	0.84	92	F	178	#306	0.81	71	E	137	#279
Route 9 WB TR	0.95	28	C	1,038	1,211	0.97	33	C	1,136	#1,429	1.05	56	E	~1,092	#1,227
CVS NB LT	N/A	N/A	N/A	N/A	N/A	0.86	115	F	65	#152	0.56	54	D	47	94
CVS NB R	N/A	N/A	N/A	N/A	N/A	0.43	67	E	68	122	0.34	48	D	50	95
Overbrook Dr. SB LTR	0.79	95	F	100	#226	0.80	94	F	112	#236	0.64	57	E	89	160
Overall	0.93	27	C			0.92	36	D			0.93	41	D		
Worcester Street (Route 9) at Oak Street East Signal															
Weekday Evening	1.08	78	E			1.08	68	E			0.94	38	D		
Saturday Midday	0.84	24	C			0.84	32	C			0.77	27	C		
Worcester Street (Route 9) at Oak Street West Signal															
Weekday Evening	1.03	57	E			1.03	57	E			Intersection Eliminated				
Saturday Midday	0.76	16	B			0.76	16	B							

a volume to capacity ratio
b average delay in seconds per vehicle
c level of service
d average queue length
e 95th percentile queue length
95th percentile volume exceeds capacity, queue may be longer
m Volume for 95th percentile queue is metered by upstream signal
~ volume exceeds capacity; queue is theoretically infinite

As can be seen in Table 1, the CVS driveway can be added as the fourth approach to the intersection without significantly degrading vehicle operations between 2013 No-build and 2013 Build conditions.

The No-Build condition level-of-service could be maintained with the ITE-based CVS trip generation projections presented in the August 2008 traffic study. However, for the purpose of this current exercise, the Build condition analysis was conservatively using the higher trip generations estimates based on the two sites suggested by BETA.

With the complexity of the Route 9/Oak Street intersection due to the Route 9 volumes along with the number of movements which need to be accommodated, this intersection requires a 150-second cycle length. This is on the higher end of cycle lengths typically provided for signalized intersections. For example, under existing conditions, the Route 9/Overbrook Drive intersection (an isolated location) operates with a cycle length that generally varies between 85 and 115 seconds. Coordinating with the more complex signal at Route 9/Oak Street requires that the Route 9/Overbrook Drive cycle length be increased to 150-seconds. However, with the subsequent improvements planned as part of the MassHighway reconstruction project there would be the ability to reduce the cycle length at both locations to approximately 120 seconds as currently planned. This in turn will help to minimize queue lengths on both Overbrook Drive and the CVS driveway. While the longer cycle lengths required under future conditions may result in longer delays or queues for some movements at the Route 9/ Overbrook Drive intersection, the coordinated operation should improve the overall traffic flow along this corridor.

As shown in Table 1, the Route 9 eastbound queues at the Overbrook Drive intersection are dramatically reduced due to traffic being metered from the Route 9/Oak Street signal as a result of the planned coordination. The analysis also indicates that with the full Route 9/Oak Street reconstruction the Route 9 westbound queues will remain at the same levels projected for the No-Build condition. Based on observations by VHB, traffic operations at the Route 9/Overbrook Drive intersection are frequently affected by traffic conditions at the Route 9/Oak Street intersection. Due to the limitations of the capacity analysis software the effects of this intersection on Route 9/Overbrook Drive are not necessarily reflected by the analysis results. With the planned MassHighway project, one of the signals at this complex intersection will be removed so that this location can be reconstructed as a standard four-way signalized intersection. With the new intersection projected to operate at LOS D and C during the respective weekday evening and Saturday midday peak hours the existing adverse impacts on Route 9/Overbrook Drive from this location should be minimized. The signal analysis also indicates that the delays and queues on Overbrook Drive will actually decrease under both Build conditions.

Comment 2:

…the AM Peak should also be included in the analysis.

Response:

While the actual hours of operation have yet to be established, the proposed CVS pharmacy is not expected to open before 8 AM on weekday. Therefore, while it is possible that CVS could be open during a portion of the weekday morning peak commuting period, CVS pharmacies traditionally generate less traffic during this time than during later times of the day. This is documented in greater detail in the response to comment 10. As part of the MassHighway design process for the proposed Route 9/Overbrook Drive signal improvements, a functional design report (FDR) will need to be prepared. As a standard practice, the FDR would include a weekday morning peak hour analysis along with analysis of the more critical weekday evening and Saturday midday peak periods.

Comment 3:

Based on our field investigation, the unsignalized driveway has an obstructed view (only about 250' sightline) due to overgrown vegetation just west of the project site. This vegetation should be cut back to improve sightlines and the proponent should ensure that the unsignalized right-turn exit driveway meets sightline requirements.

Response:

Based on recent discussions with Wellesley town officials, BETA and MassHighway at an October 21, 2009 meeting it was determined that the unsignalized driveway referenced in the comment would be eliminated from the site plan and all traffic entering/exiting the site would utilize the main driveway controlled as the 4th leg by the traffic signal at the Overbrook Drive at Route 9 intersection. The site plan is being redesigned to reflect this change and will be resubmitted to the Town.

Intersection sight distance requirements at signalized intersections are such that the first vehicle stopped on an approach should be visible to the first driver stopped on each of the other approaches. This condition is met at the site driveway. Additionally, to allow right turns on red the case for a stop-controlled right turn from the minor road (Case B2, AASHTO guidelines) should be satisfied. For this reason right turns on red will not be allowed from the site driveway to Route 9.

Comment 4:

No crash rate was calculated at the Weston Rd interchange since there was no differentiation in MHD data as to which ramp each accident occurred. We suggest VHB request more detailed accident data at these locations from the Wellesley Police Department.

Response:

VHB contacted the Wellesley Police Department and requested all accident reports for accidents occurring within the Route 9/Weston Road interchange for the years 2006-2008. The Wellesley Police data provide the most comprehensive detailed data available and are the basis for the MassHighway records. These police records were obtained and subsequently analyzed. Using all of the information available VHB located these accidents to the best of our ability to specific intersections internal to the interchange. The contributing factor of multiple accidents reported below are unrelated to the characteristics of the Weston Road interchange but, rather, are directly associated with traffic delays and vehicle queues occurring at upstream locations along Route 9. To present a conservative evaluation these accidents were incorporated in the crash rate calculations summarized in Table 2.

Table 2
Route 9/Weston Road Vehicular Crash Summary (2006- 2008)

	Weston Road/ Worcester Street (Route 9) Eastbound Ramp	Worcester Street (Route 9) Eastbound/ Weston Road Ramp	Worcester Street (Route 9) Westbound/ Weston Road Ramp (Service Road)	Worcester Street (Route 9) Westbound/ Weston Road Ramp (Amherst Avenue)
Signalized?	No	No	No	No
Year				
2006	2	4	4	3
2007	2	11	1	2
2008	3	3	1	2
Total	7	18	6	7
Average Annual				
Collision Type				
Angle	2	2	1	2
Head-on	0	0	0	0
Rear-end	4	16	3	5
Sideswipe	0	0	0	0
Single-vehicle crash	1	0	2	0
Unknown	0	0	0	0
Total	7	18	6	7
Severity				
Fatal	0	0	0	0
Injury Accident	1	2	2	3
Property Only	6	16	4	4
Unknown	0	0	0	0
Total	7	18	6	7
Time of day				
Weekday 7:00 AM - 9:00 AM	1	4	0	0
Weekday 4:00 PM - 6:00 PM	4	0	2	1
Saturday 11:00 AM-2:00 PM	0	0	0	0
Weekday, other time	2	11	3	5
Weekend, other time	0	3	1	1
Total	7	18	6	7
Pavement Conditions				
Dry	6	14	5	5
Wet	1	4	0	2
Snowy	0	0	0	0
Ice/Slush	0	0	1	0
Unknown	0	0	0	0
Total	7	18	6	7
MassHighway Crash Rates	0.39	0.62	0.19	0.24

According to the Wellesley Police accident data provided, the total number of accidents which occur within the study area elements of the Route 9/Weston Road interchange is 38. This is significantly less than the 75 accidents reported for the entire interchange in the TIAS. This discrepancy is partially attributable to the fact that not all of the locations that comprise the Route 9/Weston Road interchange are included in the project study area. Because individual locations could not be distinguished from the MassHighway data, all accidents associated with the interchange previously were included in the

August 2009 TIAS. Some of these accidents actually occurred outside of the study area and are not included in Table 2.

As can be seen in Table 2, when broken down into individual locations all intersections have a crash rate below the District 3 average 0.69 for unsignalized intersections. All locations also have a crash rate below the state average for unsignalized locations 0.60 with the exception of Route 9 east at the Weston Road on/off-ramps. As previously mentioned the contributing factors of some accidents are not associated with the characteristics of the intersection. In the case of Route 9 east at the Weston Road on/off-ramps a number of accidents occur as the result of congestion along Route 9 where one vehicle rear-ends another vehicle queued in traffic along Route 9. If these accidents were eliminated from the crash rate calculation, the resulting crash rate at this location would be below the state average as well. The likely reduction in Route 9 congestion resulting from the planned signal coordination should help to alleviate the number of these types of accidents.

Comment 5:

Please verify that using a 1.5% growth rate versus a 1% growth rate will not artificially inflate the no-build conditions.

Response:

The 1.5% growth rate was chosen to be consistent with the traffic study for the Wellesley Travel Inn redevelopment project at 978 Worcester Street, immediately adjacent to the CVS project site which was recently prepared and accepted in April of 2008. A 1.5% growth rate was also used in VHB's traffic assessments for the proposed Natick Mall redevelopment project. VHB checked the MassHighway database for nearby permanent count stations that could be referenced, but there are not any in the Wellesley area on Route 9 that can be referenced. Based on this information, VHB believes that the 1.5% growth rate should continue to be used so as to provide for the most conservative analysis of future traffic volume levels.

Comment 6:

The proponent provided hand-written volume backup to account for these planned [background] *projects; however, more detailed information and explanation of assumed project timelines are needed for our review.*

Response:

Table 4 within the August 2008 TIAS provides the size of each individual background project. In instances where the background project was partially constructed at the time of the traffic counts (Linden Square, Natick Mall, etc.) the size indicated corresponds only to the remaining unbuilt portion of the project at that time. Some of these projects have since been completed or significantly advanced, such as the Natick Mall project. However, the status of the projects at the time of the initial traffic counts remains the most relevant factor in determining how much additional traffic needed to be added to the base volumes collected.

The approved composition of the Wellesley Travel Inn project now includes 20 additional condominium units that were not included in the original traffic study prepared for that project. VHB included these additional units in the background traffic projections for this project following discussions with the Wellesley Planning Department.

Comment 7:

There are inconsistencies with volumes from several of these [background] *projects. The "All Background Developments" figure provided in the appendix also has some inconsistencies from the backup, particularly at the Weston Rd / Ramp intersection. Were trip generation from these previous projects used or were these trip*

generations re-calculated? Please explain how you arrived at the site specific volumes. Also, please provide the project generated volume figures copied from the actual traffic studies for each of these projects and explain any adjustments and assumptions made for your calculations.

Response:
See the response to Comment 6. As a result of this comment VHB reviewed the background project networks in the appendix and did locate some discrepancies. These discrepancies resulted from transcription errors in a couple of individual background project networks. The "All Background Developments" figure however was transcribed correctly and is accurate. Corrected background development project networks are attached to this document. Background project traffic was projected into the study area using engineering judgment where pre-existing traffic networks were unavailable.

Comment 8:

The proponent calculated for a 14,593 sf space (12,900 sf pharmacy + 1,693 sf non-sales mezzanine) but the language in the report indicated that the 1,693 SF is included in the 12,900 SF space. Please clarify.

Response:

The 1,693 sf of mezzanine space is in addition to the 12,900 sf of floor area. The mezzanine space is a non-sale storage area located above the sales floor. Following standard practice for estimating trip generation only, this area was included in the total building area.

Comment 9:

…the PM Peak hour trip generation (from 4-6 PM) should be a total of 151 trips, not 120 trips, according to ITE Trip Generation.

Response:

The trip generation estimates contained within the TIAS were based on the 7th edition of the ITE Trip Generation manual[2]. Since these initial estimates were completed the 8th edition has become available. Table 3 below provides the trip generation estimate for the proposed CVS based on this latest edition. However, as noted earlier, the updated Build analysis presented in the Response to Comment 1 reflect empirical trip generation data collected at other area CVS pharmacies as identified by BETA. More detail regarding these trip generation estimates are provided in the Response to Comment 10.

[2] Trip Generation; Seventh Edition; Institute of Transportation Engineers; Washington, D.C.; 2003.

Table 3
ITE Trip Generation 8th Edition
CVS Trip Generation Summary – Total Trips

Time Period	Movement	CVS Total Vehicle Trips
Weekday Daily [a]	Enter	645
	Exit	645
	Total	1,290
Weekday Morning Peak Hour [b]	Enter	20
	Exit	20
	Total	40
Weekday Evening Peak Hour [b]	Enter	75
	Exit	75
	Total	150
Saturday Daily [a]	Enter	750
	Exit	750
	Total	1,500
Saturday Midday Peak Hour [b]	Enter	105
	Exit	95
	Total	200

Source: Trip Generation, 8th Edition; Institute of Transportation Engineers (ITE); Washington, D.C. (2008). Land Use Code 881 (Pharmacy/Drugstore with Drive-Through Window) for 14,593 sf CVS, including mezzanine space. Saturday trip generation developed by applying ratio of weekday to Saturday trip generation, as calculated using Land Use Code 820 (Shopping Center) for 14,593 sf of total building area, to the CVS weekday trip generation.
a vehicles per day
b vehicles per hour

Comment 10:

As there is limited data available in ITE for pharmacies and since this proposed project is not considered a shopping center, BETA recommends that the proponent validate the ITE data used by surveying three similar CVS stores with drive-thru pharmacies in the area during AM and PM peak hours and the Saturday peak hour. We suggest two of those comparison locations as follows:

- *1280 Worcester Road in Framingham located 6.5 miles to the west on Route 9*
- *137 West Central Street (Route 135) in Natick located 4 miles southwest.*

Response:

As requested VHB has conducted manual turning movement counts at the two area CVS stores identified in the comment to validate the ITE predicted trip generation. These counts were conducted on Thursday, October 15, 2009 during the weekday morning and evening peak periods and Saturday, October 17, 2009 during the midday peak period. Table 4 summarizes the resulting empirical trip generation for each store and calculates the resulting empirical based trip generation for the proposed Wellesley CVS.

Table 4
CVS Empirical Trip Generation Summary

Time Period	Movement	1280 Worcester Road Framingham		137 West Central Street Natick		Composite Empirical	Total Wellesley CVS Trips
Size (sf)		14,255 sf		11,425 sf			14,593 sf
		Observed	Trip Rate*	Observed	Trip Rate	Trip Rate	
Weekday Morning	Enter	51		32			47
Peak Hour [a]	Exit	49		29			43
	Total	100	7.015	61	5.339	6.177	90
Weekday Evening	Enter	103		91			111
Peak Hour [a]	Exit	104		69			97
	Total	207	14.521	160	14.004	14.263	208
Saturday Midday	Enter	101		113			123
Peak Hour [a]	Exit	103		103			119
	Total	204	14.311	216	18.906	16.608	242

* Observed trip rate per 1000 sf of floor area
a vehicles per hour

As shown in Table 4, use of the observed CVS trip generation rates yields approximately 40 to 50 more peak hour vehicle trips than the ITE based estimates presented in Table 3. The data also clearly demonstrate that the weekday evening and Saturday midday peak hours remain the critical analysis periods for CVS.

Both sites (the Framingham store in particular) are located along commuter roadways from which the CVS may draw a considerable amount of its business. As stated in the TIAS, a portion of the vehicle-trips generated by the proposed site will be drawn from the existing traffic passing the site in the form of pass-by traffic. ITE data suggest that on average 49 percent[3] of the traffic generated by a Pharmacy/Drugstore with Drive-Through Window is pass-by traffic. To present a realistic analysis, it has been assumed in this analysis that 49 percent of the traffic generated by the site would be pass-by trips. The resulting trip generation is presented in Table 5 compared to that predicted by the ITE based method (with the MassHighway standard 25-percent pass-by rates) shown in the Response to Comment 9.

[3] Trip Generation Handbook, Institute of Transportation Engineers, March 2001.

Table 5
CVS Trip Generation Summary

Time Period	Movement	CVS Total Vehicle Trips[a]	CVS Pass-by Vehicle Trips [b]	Net New Vehicle Trips	ITE New Vehicle Trips
Weekday Morning Peak Hour [d]	Enter	47	23	24	15
	Exit	43	21	22	15
	Total	90	44	46	30
Weekday Evening Peak Hour [d]	Enter	111	54	57	56
	Exit	97	48	49	56
	Total	208	102	106	112
Saturday Midday Peak Hour [d]	Enter	123	60	63	79
	Exit	119	58	61	71
	Total	242	118	124	150

a Total Wellesley CVS Trips from Table 4
b 49% Pass-by rate
c Total Vehicle Trips from Table 3 with a 25% pass-by rate applied
d vehicles per hour

As shown in Table 5, the number of new trips generated by the project is similar regardless of whether the ITE or CVS data are used. In fact, the ITE trip generation methodology yields a slightly higher number of new trips during the critical weekday evening and Saturday midday peak hours. Regardless, the CVS-based trip generation estimates were used for this current assessment so as to evaluate the maximum number of CVS trips that could be expected to enter and exit the site via the Route 9/Overbrook Drive signal.

Comment 11:

It is unclear why about half of the paved site area is designated for drive-thru circulation when it seems that the drive-thru is likely to be only a peripheral use of the CVS facility. It would be better to design the layout so that the south and east side of the facility is designated specifically for the drive thru, loading area and cross-connection traffic to 978 Worcester St. It might be less confusing for circulation and provide more area for parking if the parking area to the west of the building was simply a single lane counterclockwise loop redesigned for entrance by all traffic.

Response:

With the availability of parking in close proximity of the store entrance, it is anticipated that the 13 parking spaces located to the rear of the CVS will be utilized as employee parking. As such, these spaces should turnover on a far less frequent basis and will not conflict with the drive-through operation. VHB has revisited the proposed parking layout to the west of the building and found that the current configuration provides for the most optimal number of spaces, while allowing access and egress via the Route 9/Overbrook Drive traffic signal.

Comment 12:

We suggest the proponent research the queue lengths designed for similarly sized drive-thru pharmacies in the area (such as the two CVS locations previously mentioned for comparison in Natick and Framingham) for a comparison of stacking areas to determine if this is adequate.

Response:

As requested VHB conducted queue studies at the two area CVS stores identified in the comment to determine the adequacy of the proposed vehicle stacking area. These counts were conducted on Thursday, October 15, 2009 from 3-7 PM and Saturday, October 17, 2009 from 11 AM to 4 PM. The Framingham store features two full-service lanes (similar to that proposed at the Wellesley site) while the Natick CVS features two lanes, with the outer lane only being available for drop-off.

The Framingham CVS has a peak total of 18 and 16 drive-through customers during the respective weekday evening and Saturday midday peak hours. The Natick site generated 21 and 20 customer vehicles during the weekday evening and Saturday midday peak hours, respectively.

The average queue observed at the Natick CVS was two to three vehicles, with a maximum queue of six vehicles which occurred once on both days observed. On both the weekday and Saturday observed the Framingham CVS averaged two queued vehicles in the drive-through lane with a maximum of four vehicles observed. At both the Natick and Framingham sites there was negligible use of the outer lane. CVS recently has been providing two full-service lanes as it was found that there was infrequent use of the drop-off lanes, such as the one provided in Natick. The infrequent use of the second full-service lane in Framingham may be attributable to customers not being familiar with the new two full-service window option or other unknown factors. Regardless, the proposed Wellesley CVS site layout has been developed to be able to accommodate the drive-through activity noted above, without queues extending into the main CVS parking field.

Comment 13:

It was mentioned that signal equipment, crossing marking and pushbuttons would be updated as part of the 978 Worcester St Project. The overall signal improvement should be coordinated with the 978 Worcester St project and the Natick Oak St improvement project.

Response:

As previously mentioned there are a number of different improvement plans for Route 9's intersections with Overbrook Drive and Oak Street in Natick, both as mitigation for development projects and as part of state improvements. Before implementing the CVS improvements a Functional Design Report will be prepared and submitted to MassHighway for review. During this process MassHighway will control how all projects are coordinated and implemented. The proponent has already held preliminary discussions with MassHighway's District 3 and 4 offices, which oversee the improvements in Natick and Wellesley, respectively. As noted earlier this was also discussed in detail at the October 21, 2009 meeting with MassHighway District 4 attended by VHB, BETA and representatives of the Town of Wellesley. Throughout the remainder of the process an open line of communication will be maintained with MassHighway to facilitate a productive implementation of all improvements throughout the corridor. It is expected that the pedestrian signal improvements required as mitigation for the 978 Worcester Road project will be implemented at the Overbrook Drive at Route 9 intersection prior to the opening of the CVS.

Comment 14:

…it appears that any delivery truck would need to follow the drive-thru area to access the building, but would have to cross through the drive-thru traffic path to exit and be unable to pass on the east side of the building if both drive thru windows were being used simultaneously.

Response:

The proposed site layout is a prototypical design used without issue at several existing CVS sites. The largest vehicle visiting the site should be CVS tractor trailers (one to two per week) under the control of CVS in terms of when and how deliveries occur. There are also a limited number of other tractor trailers visiting the site along with deliveries made by smaller "box" trucks throughout the week (newspapers, dairy, etc.). The drive-through canopy at this site has been designed with sufficient height to allow for trucks to pass under its outer edge without difficulty. There is also sufficient room for drive-through customers to bypass a truck parked at the loading door. Regardless, if necessary, the drive-through can be temporarily closed if needed while large truck deliveries occur, though past experience at other sites indicates that measure should not be necessary. With this volume of truck activity and the specially designed canopy height trucks should be able to circulate around the building as proposed without difficulty.

Comment 15:

…the jagged-shaped concrete pad on the south side of the building creates an awkward path for the drive-thru; a curved concrete pad should be designed for a smoother transition.

Response:

As noted above, the loading configuration is part of the prototypical CVS store layout used without difficulty at several other locations. Pavement markings indicating the drive-through area entrance should help to properly guide customers into this area without difficulty.

Comment 16:

Given its location, the parking on the north side of the CVS will most likely only attract drive-thru traffic or traffic from the cross-connection heading to Route 9 WB, so consider making this section of the lot one-way WB only.

Response:

As a result of the October 21, 2009 meeting with MassHighway, the proposed site layout is being redesigned to eliminate the proposed right-turn exit driveway. With that change, the layout of the northerly front parking field is also being revisited. While plans have not yet been finalized, the parking spaces will likely be relocated away from the building so that these spaces will be along the site frontage and the circulation aisle will be located immediately next to the building. Access to these spaces for vehicles entering the site from Route 9 will still likely be blocked under peak conditions by exiting CVS customers queued at the signal. However, these spaces may be more readily available during non-peak conditions. As such, CVS has indicated a strong desire to maintain two-way access to these storefront spaces which are highly valuable from a business perspective.

Comment 17:

The drive-thru should be wide enough to accommodate two lanes of traffic: one turning left toward the signal and Route 9 WB and one turning right directly onto Route 9 EB.

Response:

With the planned elimination of the right-turn exit all traffic exiting the drive-through area will be turning left to access the signal to exit the site onto Route 9. The new layout is being designed to allow for trucks to circulate around the building to access the signal, and also to have exiting drive-through traffic merge into a single lane before turning into the northerly front parking field.

Comment 18:

… most of the parking on the south side of the lot will be displaced during the winter as snow storage area. Where on the site will these thirteen parking spaces be replaced when these spaces are used for snow storage?

Response:

Parking demand counts conducted by VHB at the Framingham and Natick CVS sites are summarized in the response to Comment 23. That information indicates that even with the temporary loss of 11 spaces for snow storage, there would still be sufficient parking to accommodate the anticipated demand. If a parking shortfall did occur, most retailers will generally have snow removed from the site so as not to impact business.

Comment 19:

Provide signage to ensure that neither exit driveway is blocked by queuing traffic, particularly on the north and east side of the building where cross-connection traffic may cause queues.

Response:

With the planned elimination of the right-turn exit driveway all traffic will now be exiting the site at the same point via the signalized Route 9/Overbrook Drive intersection.

Comment 20:

The unsignalized exit driveway for this project site is located only about 75' west of the entrance drive to 978 Worcester St and could be a weaving problem. Please consider improving traffic safety between these driveways.

Response:

As previously mentioned the unsignalized driveway in question has been eliminated from the site plan, thus eliminating this concern.

Comment 21:

Please provide backup to quantify the 80 and 85 trip estimates [from Wellesley Travel Inn Site].

Response:

The 80 and 85 trip estimate comes directly from the project generated traffic volume figures from the TIAS for the Wellesley Travel Inn site[4]. These volumes represent the total amount of traffic exiting the Travel Inn site destined either west along Route 9 or north along Overbrook Drive rounded to the nearest 5 vehicles. Graphics showing the trip assignment for that project are provided in the appendix to this document.

Table 6 provides an update of the cross connection analysis based on the updates outlined in this memorandum. For reference the 2013 Build conditions without the cross connection, both with and without the full reconstruction of Oak Street, are provided. These are the same results presented earlier in Table 1; the only new information presented is in the far right column highlighting 2013 Build

[4] Traffic Impact and Access Study, Proposed Mixed-Use Development, VAI, July 17, 2007

Conditions with the reconstruction of Oak Street and the potential cross connection to 978 Worcester Road.

Table 6
Worcester Street (Route 9)/ Oak Street/ Overbrook Drive Signal System
Capacity Analysis Summary - with Cross-Connection to 978 Worcester Road

	2013 Build Conditions without the reconstruction of Oak St.					2013 Build Conditions with the reconstruction of Oak St.					2013 Build Conditions with the reconstruction of Oak St. & Cross Connection				
	V/C [a]	Delay [b]	LOS [c]	Avg[d]	95th[e]	V/C	Delay	LOS	Avg	95th	V/C	Delay	LOS	Avg	95th
Worcester Street (Route 9) at Overbrook Drive/Site Drive															
Weekday Evening															
Route 9 EB LT/UT	0.96	94	F	122	m114	0.83	80	F	104	m119	0.85	83	F	104	m119
Route 9 EB TR	0.98	32	C	146	m178	1.02	35	D	~374	m#442	1.02	35	D	~374	m#442
Route 9 WB LT/UT	0.99	139	F	151	#303	0.96	114	F	~126	#263	1.03	+	F	~126	#263
Route 9 WB TR	0.94	29	C	982	1,141	1.00	38	D	~891	#1,130	0.97	32	C	796	#1,062
CVS NB LT	0.52	64	E	50	101	0.50	50	D	38	83	1.42	+	F	~147	#279
CVS NB R	0.23	57	E	47	92	0.22	45	D	37	76	0.22	44	D	37	76
Overbrook Dr. SB LTR	0.93	106	F	195	#372	0.87	78	E	144	#291	0.18	+	F	~171	#339
Overall	0.97	39	D			0.99	42	D			1.09	50	D		
Saturday Midday															
Route 9 EB LT/UT	0.90	106	F	180	#328	0.84	87	F	146	m#279	1.09	158	F	~159	m#279
Route 9 EB TR	0.83	20	B	745	857	0.89	14	B	294	257	0.91	15	B	294	257
Route 9 WB LT/UT	0.84	92	F	178	#306	0.81	71	E	137	#279	0.92	96	F	140	#279
Route 9 WB TR	0.97	33	C	1,136	#1,429	1.05	56	E	~1,092	#1,227	1.01	43	D	~953	#1,148
CVS NB LT	0.86	115	F	65	#152	0.56	54	D	47	94	1.06	+	F	~134	#273
CVS NB R	0.43	67	E	68	122	0.34	48	D	50	95	0.28	45	D	49	95
Overbrook Dr. SB LTR	0.80	94	F	112	#236	0.64	57	E	89	160	0.73	62	E	91	#201
Overall	0.92	36	D			0.93	41	D			0.99	41	D		

a volume to capacity ratio
b average delay in seconds per vehicle
c level of service
d average queue length
e 95th percentile queue length
95th percentile volume exceeds capacity, queue may be longer
m Volume for 95th percentile queue is metered by upstream signal
~ volume exceeds capacity; queue is theoretically infinite

As can be seen in Table 6 the addition of the cross connection between the CVS site and the Wellesley Travel Inn site will create additional delays and queues within the CVS site. These queues lengths could become a concern for CVS is on-site operations are adversely affected as a result of the potential

cross-connection. Even with these additional delays the intersection is still capable of operating at LOS D even with the cross-connection in place.

Comment 22:

Based on our field observations, traffic flows during the PM peak hours show very poor operations, much worse than LOS B reported and queues on Route 9 Westbound often stretching back beyond Weston Road, a distance of over 2000 feet. It is recommended that the traffic analysis be calibrated to reflect actual conditions.

Response:

This concern was discussed at meetings attended by VHB, BETA and representatives of the Town of Wellesley and were also raised during the permitting of the adjacent 978 Worcester Road project. VHB has reviewed traffic analysis conducted for that project, including vehicle queue data on the Route 9 westbound approach to the Route 9/Overbrook Drive intersection. Those observations were conducted by the traffic consultant for that project on Wednesday, September 19, 2007 during the weekday evening peak commuter hour. A maximum vehicle queue of 60 vehicles (approximately 1,500 feet) was observed on the Route 9 westbound approach. This queue length is longer than the 906-foot 95th percentile queue reported in VHB's August 2009 TIAS. However, the analysis worksheets in the appendix note that the Route 9 westbound through-volume exceeded capacity and that the actual queues would be longer than the reported values. In the traffic studies for the 978 Worcester Road project and the Functional Design Report for the Route 9/Oak Street project, the capacity analysis methodology utilized was the same as that used by VHB in the August 2009 TIAS. As such, VHB does not believe that any adjustment or calibration of the analysis appears to be required, as the analysis worksheets already note the limitations of the software regarding the discrepancies identified by BETA.

Comment 23:

The site plan (C-3 Layout & Materials Plan) provided shows the 65 proposed parking spaces (including 3 handicapped spaces) for this site. The number of parking spaces was based on parking demands at 2 similar sized CVS facilities located in Athol, MA and West Boylston, MA. The parking requirements at this facility should also be compared to those provided at the following CVS locations previously mentioned:

- *1280 Worcester Road in Framingham*
- *137 West Central Street (Route 135) in Natick*

Response:

As requested VHB has observed parking at the two locations cited. Based on these observations, the peak demand at the Framingham site was 35 vehicles and the peak demand at Natick was 33 parked vehicles. This is consistent with the parking observations presented in the August 2009 TIAS. Summarizing these observations to provide a composite parking generation rate for the proposed Wellesley CVS yields a maximum parking of 39 spaces during October conditions. According to the Urban Land Institute[5] parking at retail facilities in October are 66% of peak month conditions. This indicates that the peak seasonal parking demand for the proposed Wellesley CVS would be approximately 55 vehicles. Typical practice is to design retail parking lots to function at no more than 85- to 95-percent of capacity so that customers do not have to search for an inordinate amount of time for a space or have to circulate the area excessively. Based on the observed demand, the proposed parking supply appears to be appropriate for this location.

[5] Shared Parking 2nd Edition, Urban Land Institute, 2005 pg 14

Comment 24:

Since this project will be adding even more traffic and congestion to Route 9, traffic calming mitigations should also be considered for the Overbrook Dr and Beechwood neighborhoods, as these residential streets are regular cut-thru routes regularly used to avoid congestion on Route 9..

Response:

In response to this comment VHB has been working with the Town of Wellesley engineering staff to collect traffic volume data on Overbrook Drive, Beechwood Road and Manor Avenue. This traffic data collection involves collecting volumes and speed observations over a continuous 7-day period on these roadways. The data collection has just been completed and the data analysis is now underway. A summary of this neighborhood study will be submitted under separate cover shortly.

Attachments

- BETA Peer Review Letter
- Revised Capacity Analysis
- Crash Rate Calculations
- Revised Background Development Networks
- ITE 8Th Edition Trip Generation
- Empirical Count Data – Framingham, MA & Natick, MA
- Travel Inn Site-Generated Networks
- Revised Cross-Connection Capacity Analysis

BETA Peer Review Letter

Revised Capacity Analysis

Crash Rate Calculations

Revised Background Development Networks

ITE 8Th Edition Trip Generation

Empirical Count Data

Travel Inn Site-Generated Networks

Revised Cross-Connection Capacity Analysis