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February 5, 2008

Mr. Hans Larsen
Director of General Government
Town of Wellesley
525 Washington Street
Wellesley, MA 02482

3016 – 36

Re: 27 Washington Street (Grossman's) Redevelopment
Peer Review of Project of Significant Impact-Municipal Systems Impact Analysis-Traffic Component

Dear Mr. Larsen:

At your request, BETA Group, Inc. has completed its review of the Traffic Impact Analysis related to traffic and pedestrian safety issues for the proposed redevelopment of 27 Washington Street. The impact study was completed by Conley Associates in December 2007 and submitted to the Town of Wellesley. BETA was also provided a memorandum dated December 7, 2007 entitled "Additional Information Requested by BETA" and the site plan set entitled "Arborpoint at Wellesley & Retail/Office Building" dated December 14, 2007 for relevant review.

Our findings for the information presented in the Traffic Impact Study are discussed from existing conditions to the proponent's mitigations. Any further information, revisions or additional analysis requested of the applicant is italicized herein.

INTRODUCTION

The proposed redevelopment of 27 Washington Street is located at the former Grossman's site, and situated approximately 600 feet to the west of the Wellesley town line bordering the City of Newton.

The proposed development would consist of 17,000 square feet of retail space, 16,000 square feet of office space and 150 residential rental units, replacing the existing Grossman's building. There would be one main access site driveway at the western end of the site. The intersections included as part of this traffic study are:

<u>Signalized Intersection</u>
Washington Street & Concord Street (located in the City of Newton)
Washington Street & Walnut Street
Walnut Street & River Street/Cedar Street

Unsignalized Intersection
Washington Street & River Street
Washington Street & Mica Lane
Washington Street & Columbia Street
Washington Street & Ledyard Street
Washington Street & Glen Road
Washington Street & Oakland Street

The critical peak periods vary according to each land use for this proposed mixed use development. As such, the proponent took a conservative approach and decided to analyze all the study intersections during the weekday AM (7:00-9:00AM), weekday PM (4:00-6:00PM), and Saturday midday (11:00AM-2:00PM) peak periods.

EXISTING CONDITION

ROADWAY GEOMETRY

BETA has sight distance concerns at the intersections of Mica Lane/Washington Street and the One Washington Street driveway. With the presence of on-street vehicle parking on Washington Street in this area, vehicles approaching or exiting these two intersections do not have adequate site distance. There are over 12 curb cuts/driveways located on the south side of Washington Street between River Street and Glen Road. These multiple curb cuts create significant traffic operational problems, particularly access and egress traffic at these driveways. The on-street parking activity maneuvering in and out of the spaces on both sides of Washington Street and the single travel lanes for each travel direction also create operational problems. Currently, there are six metered on-street parking spaces on the south side of Washington Street in front of Dunkin Donuts, four metered are located on the northern side of Washington Street directly across from the Dunkin Donuts and four metered spaces currently exist in front of 27 Washington Street. In addition, there is a crosswalk within the vicinity of the Dunkin Donuts that is heavily used by pedestrians which also contribute to the overall complexity of the traffic operational issue along this section of Washington Street. We want to note that none of these factors were discussed in the traffic report.

TRAFFIC VOLUME DATA

Turning movement counts (TMC) were recorded in March 2007. According to the TMC data collected, the weekday commuting peak hours in this area are between 7:30-8:30 AM and 4:45-5:45 PM and the Saturday midday peak is from 12:00-1:00 PM. *We ask the proponent to calculate a K factor based on the TMC data collected to compare with the ATR count data K factor.*

Automatic Traffic Recorder (ATR) counts were performed for this project during a nonconsecutive 72 hour period on Thursday, March 15, 2007 and Saturdays March 24th and 31st. The ATR average daily traffic directional splits are consistent each day along Washington Street making up of 48% of the vehicles traveling eastbound and 52% traveling westbound with an average weekday K factor of 0.82. *The K factor should be 0.082 not 0.82.*

During a field check BETA observed left turning vehicles entering and exiting the One Washington Street driveway located between Mica Lane and River Street. These movements cause significant traffic blockage resulting in long queues on both Washington Street approaches to the intersection. *To address this issue, we request that the proponent include this intersection in the study and perform a turning movement count and traffic analysis at the One Washington Street driveway.*

SEASONAL ADJUSTMENT

The proponent used monthly average daily traffic data from two MassHighway continuous counting stations located in the surrounding area to determine the seasonal adjustment factor for the month of March. This data shows March volumes to be approximately 3% lower than average month volumes. Therefore, the proponent increased the TMC volumes by 3% to reflect the average month conditions.

BETA compared the proponent's calculated seasonal adjustment factor to MassHighway's March 2007 weekday seasonal adjustment factor for Group 6 (Urban Arterials, Collectors & Rural Arterials) roadway. The seasonal adjustment factor for the group 6 category of road is 3% higher for the month of March than the average month. The MassHighway continuous counting station data is more localized as compared to the Group 6 information which is more regional based. Therefore, BETA finds the proponent's data to be acceptable.

EXISTING TRAFFIC VOLUMES

The 2007 existing traffic volumes were determined by balancing the peak hour volumes. The proponent should revise the left turning volume exiting Oakland Street during the PM peak hour in *Figure 2* and the corresponding SYNCHRO analysis. The left turn volume should be 2 vehicles turning left according to the turning movement count instead of the 158 vehicles shown in the analysis. *Figure 6 and Figure 14 should be revised accordingly.*

DATA COLLECTION DURING THE SCHOOL PEAK HOUR

On November 8th and 15th, 2007 turning movement data was collected. Data collected included all pedestrian, vehicle and bus activity during the school pick-up (2:00-3:00 PM) at St. John the Evangelist School. This school is located on Washington Street in between Ledyard Street and Columbia Street. The data revealed that most students were driven by car to the school, one bus picked up students and approximately 7 students crossed Washington Street via a crossing guard. There were no significant delays or backups by vehicles observed during the pickup time as the 40 vehicles leaving the school during the school peak hour were controlled by the crossing guard. *We request that this back-up data be provided for our review.*

PEDESTRIAN COUNT

On Tuesday November 6th and Thursday November 8th, 2007, pedestrian counts were conducted within the study area between the PM peak hours of 4:00 and 6:00PM. Pedestrian crossings in the study area are located on Washington Street at four locations: just west of Mica Lane, between Ledyard Street and Glen Road, between Crescent Street and Orchard Street and near Walnut Street.

The crosswalk near Mica Lane was the busiest with 40 pedestrians crossing between 5:00-6:00PM. Between 4:00-5:00PM at the crosswalk between Ledyard Street and Glen Road, 10 pedestrians crossed. None of the other crosswalks had more than one pedestrian crossing during the PM peak hour. We want to note that while the other crosswalks have light pedestrian activity, there will certainly be more pedestrian activity during the warmer season going to the recreational facilities. Vehicles stop for pedestrians crossing the crosswalk near Mica; however, as vehicles stop for the pedestrians, queues form on the eastbound and westbound travel direction on Washington Street while also effecting vehicles entering and exiting area driveways and on-street parking.

ACCIDENT DATA

The proponent performed accident analyses using MassHighway crash data from the years 2003-2005. *We request the proponent to provide back-up of the MassHighway crash data presented in this report. If available, the most recent 3-year updated accident reports from the Wellesley Police Department should also be obtained to include recent accident reports in the study area.*

According to the data provided there were no accidents reported during the years 2003-2005 at the intersection of Washington Street and Concord Street located in the City of Newton. *We recommend that the proponent verify this and suggest they check both the MassHighway and City of Newton Police Department crash data for the most recent three years available.*

Two unsignalized intersections have higher accident rates than the MassHighway District 4 average accident rate of 0.63. The accident rates at the intersections of Washington Street/River Street and Washington Street/Mica Lane were both 0.90. It was noted in the report that the high accident rate at the intersection of Washington Street/River Street is partially due to the transition of two through lanes to one on Washington Street heading westbound towards the intersection. The high accidents are also contributed by the close proximity of the multiple driveway locations.

The proponent stated that there was adequate sight distance at all of the study intersections and they also reference limited sight distance as the reason for a high accident rate at the intersection of Washington Street/Mica Lane. The sight distance is the Mica Lane approach is limited due to vehicles currently parked along Washington Street.

NO BUILD CONDITION

BACKGROUND TRAFFIC GROWTH RATE

In order to determine traffic growth rates, MassHighway traffic count stations, ATR and TMC volumes from previous years to present were evaluated for the growth trend. The comparison of all data showed no growth in traffic volumes along Washington Street in the past few years. To provide a reasonable and conservative estimate of background growth, a one percent per year was used for the analysis. We agree with the 1% per year volume increase used in the report as this is consistent with recent traffic studies prepared for the Town.

SITE SPECIFIC DEVELOPMENT

Based on discussions with the Wellesley Town Planner, the proponent identified two proposed local developments which would have an impact on this project: Linden Square Development and Wellesley Inn Redevelopment. The proponent determined that there would be between 25 and 35 trips during the peak hour period traveling along Washington Street through the study area.

Presently, there is a proposed Temple Beth Elohim renovation project which is located off of Cedar Street. *We request that this additional background development be included in the report's analysis.*

NO BUILD TRAFFIC VOLUMES

We request the proponent to provide a trip distribution map of the proposed/future developments added to the No Build 2012 volumes for reference.

BUILD CONDITION

TRIP GENERATION

Trip generation data used for the traffic report is based on the latest edition of ITE Trip Generation. The trip generation Land Use Codes (LUC) used are LUC 814 – Specialty Retail, LUC 710 – Office Space and LUC 220 – Apartment. The AM peak hour and Saturday Midday peak hour trips were determined through a ratio using LUC 820-Shopping Center. We acknowledge there is no data under LUC 814 for AM and Saturday peak hours; however, we believe the calculated sixty-one total trips during the Saturday Midday peak to be too low. *BETA recommends the following options in calculating the Specialty Retail Saturday Midday peak hour trips:*

1. *There are data points within the 17,000 square feet range under LUC 820 for AM and Saturday, utilize those average rates to calculate the trips generated.*
2. *Research historical data from a similar specialty retail store in a comparable area.*

PASSBY TRIPS

The retail space was estimated to generate between 26 to 34 percent of their patrons from passby trips during the PM and Saturday Midday peak hours. Based on previous comments from BETA they applied a 25% passby rate to the trips which we find acceptable.

INTERNAL CAPTURE TRIPS

It is understood that 12% was used as an internal capture rate however; it is not clear how the 12% was derived. The proponent assumed there would be shared trips between the retail and residential components of the development. A mixed-use development consists of interacting uses and not just one type of cross trip. *We recommend the proponent utilize the "Multi-Use Development Trip Generation and Internal Capture Rate Summary" (available in the ITE Trip Generation Book) in order to identify the most appropriate internal capture rate and include the internal capture rate calculations for our review.*

TRIP DISTRIBUTION

Residential and office trips were distributed 50/50 according to the 2000 US Census Journey to Work Data and the retail trips were calculated by existing traffic volume patterns. The trip distribution for the right turn exiting the site appears to be high. We believe that for the residential component a higher percentage of vehicle trips will turn left out of the proposed site driveway heading to Route 128 and Route 90. *We recommend re-evaluating this and adjusting the trip distributions accordingly.*

The *Figure 8 and Figure 9* information is unclear. *Figure 9* trip distribution percentages should read according to the Wellesley Resident Trip Distribution (2000 US Census Journey to Work Data) percentages provided in the Appendix. *We request that these figures be updated so they are legible and incorporate the above residential distribution changes.*

EXISTING TRAFFIC OPERATIONS ANALYSIS

INTERSECTION OPERATING CONDITIONS

Washington Street at Concord Street

The intersection of Washington Street and Concord Street is a four-legged signalized intersection with an exclusive pedestrian phase. The volumes and phasing in the SYNCHRO analysis should reflect this. The liquor store driveway volumes opposite Concord Street and an exclusive pedestrian phase with an estimate of actuations are not reflected in the analysis. *Analysis should also be calibrated to reflect existing conditions including the downstream bottleneck to the west and adjusting saturation flows on Washington Street and Concord Street due to downstream queuing. We suggest performing a saturation flow study at this intersection. While this intersection is located in Newton, it is critical to the traffic operation on Washington Street in the study area.*

Queuing along Washington Street at its intersection with Concord Street was analyzed. The proponent's observations during the AM Peak period show an average queue length of 5 vehicles with a maximum queue of 13 vehicles backing up past Grove Street on 10 occasions. During the PM peak period the same approach experienced an average of 8 vehicles in queue, a maximum of 22 vehicles in queue and the queue extended past Grove Street during a half hour period. The average and maximum queues observed during the Saturday peak period were 3 and 12 vehicles, respectively. *Queuing along Washington Street eastbound at this intersection has not been discussed. Based on our observations the eastbound queue backs up to Hillside Road during the AM commuting peak period.*

The traffic operational problems, particularly through traffic blocking on Washington Street adjacent to the proposed site, are caused by the following:

1. Vehicles maneuvering in and out of the on-street parking spaces
2. Vehicles stopping for pedestrians on crosswalks
3. Dunkin Donuts morning activity creating a frequent turn-over amongst the on-street parking spaces.

4. The close proximity of multiple curb cuts (approximately 15 curb cuts within the study area) and side streets create through traffic blockage resulting from left turn vehicle access/egress.
5. Sight distance issues at side streets and curb cuts forces traffic to enter further onto Washington Street by encroaching or blocking one travel lane while exiting and also creates queue blockage.

All of these factors affecting traffic operations along this section of Washington Street need to be considered in the traffic study.

Washington Street at River Street
The Washington Street westbound approach to River Street operates and was analyzed as a two lane approach with a shared left and through lane and an exclusive through lane. Washington Street westbound becomes a 12' single lane just west of the intersection. The lane drop area does not conform to design standards. The close proximity of the multiple curb cuts, on-street parking activity and pedestrian crosswalks have traffic operational impacts in this area. *These factors need to be considered in the analysis.*

Washington Street at Oakland Street
The Washington Street eastbound and westbound approaches to Oakland Street are analyzed as two lane approaches with an exclusive turning lane onto Oakland Street and a through lane. Washington Street is currently striped as a two lane roadway and operates this way as well. *Revise your analysis accordingly in this study area to reflect a two lane roadway.*

Washington Street at Walnut Street
The Washington Street/Walnut Street signal provides an exclusive pedestrian phase and a westbound advance which is not shown in the analysis. The phasing in the SYNCHRO analysis should include a westbound advance and an exclusive pedestrian phase with an estimate of actuations. *The analysis should be revised accordingly.*

Walnut Street and River Street/Cedar Street
The proponent obtained traffic count information from 2005 provided by BETA for the intersection of Walnut Street and River Street/Cedar Street. Though the volume impact to this intersection from the proposed 27 Washington Street redevelopment project is projected to be only 6 vehicles or less, a field review was conducted and the intersection was analyzed. Looking at the analysis it appears that an exclusive pedestrian phase and advances were not included in the analysis but presently exist. *We request that the proponent revise the analysis accordingly.*

PROPONENT'S MITIGATION

The proponent's only proposed mitigation is to signalize the Washington Street/River Street intersection and coordinate it with the existing signal at Concord Street/Washington Street. *A traffic signal Warrant Analysis was not included in the traffic report and we request that this information be provided for our review to ensure that it meets the traffic signal warrant criteria.*

While the proposed signal will provide improvements for the River Street approach, we want to note that according to the SYNCHRO analysis, signalizing the intersection of Washington Street and River Street will result in a 500' queue on Washington Street eastbound direction during the AM peak hour and 300' queue during the Saturday peak hour. These long queues will block access to the multiple driveways. *The proponent should use Sim Traffic to identify internal blockages in short links between the River Street and Concord Street intersections.* We are concerned that the proposed signal will further deteriorate traffic operations on Washington Street.

No mitigation was proposed for the outdated signal at Washington Street and Concord Street which is critical to the traffic operation on Washington Street.

The proposed overall mitigation plan for the project appears to be inadequate. *The proponent should define and outline additional mitigation measures to improve and minimize pedestrian and traffic impacts within the study area.*

ADDITIONAL FINDINGS/RECOMMENDATIONS

PEDESTRIAN SAFETY EVALUATION

Our findings for the information presented in the "*Pedestrian and Bicycle Safety*" memorandum are as follows:

- As part of the PSI requirement, the proponent evaluated the 600' radius of sidewalk surrounding the site. Washington Street and various side street sidewalks off of Washington Street including Columbia Street, Ledyard Street and River Street and the bridge sidewalk and concluded that these sidewalks are in fair condition. We want to note that "fair condition" is defined by the proponent as including more severe cracking, heaving, sinking, intrusion or encroachment of vegetation as well as the presence of patching but with no serious or hazardous walking impediments. *We recommend that the proponent repair any sidewalk areas addressed in their evaluation as deteriorating or having severe cracks.*

"ARBORPOINT AT WELLESLEY & RETAIL OFFICE BUILDING" SITE PLANS

- Plan L-1 parking layout slightly differs from Architectural 1st Floor Plan. The overall parking spaces appear to be off by 2 spaces. *Please verify.*
- No site plan related to the site driveway and Washington Street intersection configuration was provided for our review. *Conceptual plans for any off site mitigation should be developed for our review. The site driveway plan should also show traffic and emergency vehicle access/egress at the site drive particularly the left turn movement from Washington Street to the site drive.*

GENERAL COMMENTS

- *For sight distance analysis purposes, speed studies should be included in this report for our review.*

- *We recommend performing delay and gap studies for vehicles exiting River Street, Mica Lane and One Washington driveway.* During our site investigation we have observed significant delays and queuing problems at these locations particularly the left turn movements.

- *Please provide turning radius runs for emergency vehicles entering and exiting the proposed site driveway and also maneuvering around the parking lot. Also, a loading area (for deliveries to the retail stores) should be shown on the site plan along with a turning radius run for a delivery truck.*

- *A detailed discussion on the traffic analysis for the site drive at Washington Street intersection should be provided in the traffic report particularly the left turn movement from Washington Street into the site drive.*

If we can be of any further assistance regarding this matter, please contact me at our office.

Very truly yours,
BETA Group, Inc.

Frank Romeo

Frank Romeo, P.E.
President

Cc: Kien Ho, BETA Group, Inc.
Jennifer Conley, Conley Associates, Inc.

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