

## MEMORANDUM

TO: Eugene Zakhareyev  
FROM: Bill Popp, P.E.  
DATE: September 14, 2017  
SUBJECT: **Review of TSI memorandum dated July 24, 2017 re proposed AEB Mosque – Response to WSDOT Comments, April 26, 2017**

Following are my comments on the subject TSI responses organized in a subject overview manner since there is considerable overlap in the individual TSI responses to the WSDOT subject areas. My April 7, 2017 memorandum report is cited for reference to figures and data and should accompany review of this memorandum. Italics are used when quoting documents.

### **Trip generation**

#### **Sunday count data factored to weekday analysis volume**

An overview perspective of the TSI analysis suggests that they attempted to correct for the criticisms of lack of local count data reliance in the previous Jake Traffic Consultants analyses with a limited 3 day parking count conducted this year at the existing Kirkland site on Thursday, June 22 and Friday, June 23 which were the last two days of Ramadan. And a Sunday count was conducted July 7. Presumably the counts were intended to capture some maximum expected traffic events and a normal event. But the Thursday and Friday data which are evening prayer services are not considered useful while the Sunday Community Event, which is not anything like a prayer service, is arbitrarily factored by 50% and 75% to arrive at the weekday *typical prayer service traffic and parking*<sup>1</sup> volume. And that is the derivation of the 18 weekday pm peak hour project volume when it would be more rational to factor their evening prayer service data to arrive at an analysis PM peak hour number. In addition there was a whole year of count data available for the site that would greatly assist with estimating the appropriate factor or use the data outright and either way would have avoided making this unintuitive extrapolation.

#### **One year of available count data ignored**

The TSI memorandum shows 40 vehicles for the last Friday of Ramadan and states in the study that *per the Dawoodi-Boorah community, represents one of the highest attendance days for the community.* The memo goes on to suggest that *this date is representative of*

<sup>1</sup> TSI;Memorandum to Aliasgar Haveliwala and Eliyas Yakub; July 24, 2017; Anjuman-E-Burhani Community Complex, Response to WSDOT Comments, April 26, 2017;p.4

peak attendance, trip generation and parking demand conditions.<sup>2</sup> In 2012-2013 there were 13 days that equaled or exceeded this amount<sup>3</sup>.

The AEB conducted parking accumulation counts for 76 “events” from November 2012 through October 2013<sup>4</sup>. This data shows there were 66 days with 20 or more vehicles parked; 28 days with 30 or more; 23 days with 32 or more; 16 days with 36 or more; and 13 days with over 40 vehicles. It would not be difficult to estimate how many of these occurred during the weekday street PM peak period.

With 94 weekdays when sunset occurs during the 4 to 6 PM period per TSI, there are probably in excess of ½ of those evenings when 20 or more vehicles will arrive, especially if one takes into account the strong likelihood of significant understatement of growth in utilization and even membership with the vastly expanded very attractive facility adjacent to Microsoft and its surrounding condominium-apartment areas that house many of its employees (60% of AEB members are employees per JTE TIA data).

### **Not all major event data presented**

The AEB 2012-2013 survey also highlights some missing information in the event data AEB provided to TSI, namely that there is another major event which marks the start of the Muslim New Year with a ten day period of nightly gatherings -- this occurred in November of 2013. These were heavily attended events equal to Ramadan with 5 occurring on weekdays which in November would be during the street PM peak period. At some point these high volume evening traffic events become numerous enough to be considered the project’s actual PM peak hour traffic volumes to be used for analysis of traffic impacts.

### **Growth forecast should have been data driven**

TSI quite appropriately determined that it was *reasonable to assume some community growth* despite the claims of AEB that the community growth is flat. TSI applied a somewhat arbitrary growth factor of 5% to their count data and equated that to a growth in membership from 150 members to 160 members and equivalent growth in traffic.

ITE trip generation for Churches uses seating as a principle dependent variable and the equivalent for Mosques is the number of prayer rugs possible. The number of prayer rugs used by the current membership could have been surveyed, or even estimated, given floor area for prayers and TSI could have compared that to the number of prayer rugs in the new facility (147) for a data driven traffic growth estimate.

The existing facility in Kirkland is an un-allowed use per the City of Kirkland with unverifiable square footage, but it is believed that the proposal represents at least a

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<sup>2</sup> Ibid;

<sup>3</sup> William Popp Associates; *Memorandum to Eugene Zachareyev; April 7 2017; Parking and Traffic Analysis Critique of proposed AEB Mosque on NE 51st ST in the City of Redmond*; Attachment 3

<sup>4</sup> Ibid

doubling of the size of the existing. Based on national data re building size and number of families for this sect of Islam, the new facility would accommodate 2.7 times the current number of families for AEB Masjid<sup>5</sup>. The current number of families is 60<sup>3</sup>.

## **Trip Distribution**

WSDOT comment 6 requested a trip distribution figure for the revised trip generation. What that means is an allocation of the project's vehicle trips to the surrounding street system. That typically starts with a percentage allocation of likely trips to compass directions followed with the assignment of project traffic to the street system. TSI provided none of that but rather a figure showing major routes incoming trips would be taking to avoid U-turns at the 154<sup>th</sup> Ave NE intersection under right-in- right-out operation of the project driveway.

The inbound routing for a significant portion of the likely trips is highly improbable and not even possible for one major quadrant which would be from the northwest wherein the route shown is via a local neighborhood with an under developed road system and utilizing the NE 6<sup>th</sup> St crossing of SR 520. Almost all of that traffic would logically utilize the 148<sup>th</sup> Ave NE corridor which means driving all the way south to NE 40<sup>th</sup> St and then north via 156<sup>th</sup> Ave NE and then to NE 51<sup>st</sup> Street to avoid the U-turn – about 1.5 miles of additional travel. A similar but not quite as difficult scenario accrues to the traffic arriving via SR 520 from the north wherein it must travel south to NE 40<sup>th</sup> St and then back north via 156<sup>th</sup> Ave NE and NE 51<sup>st</sup> St.

Supposedly the AEB community will be advised and will follow these routes for Mosque arrivals. The most likely outcome is a significant amount of U-turning traffic will occur at the 154<sup>th</sup> Ave NE intersection as other routings can appear unnecessary and even bizarre to drivers.

If classic traffic impact analysis procedures had been followed, AEB would have provided zip code locations for its current membership and that would have resulted in fact based trip distribution and then traffic assignment figures. The forced routings would still be an assumption to be challenged, but at least there would be some quantification for reviewers to work with per the original WSDOT request. And then one could say with some confidence that at least X percentage of the arriving traffic will be forced to take unintuitive routings.

## **Conclusions**

TSI conducted three counts of the existing Kirkland facility to address the issue of need for local data but was apparently unaware that a full year of count data was available from AEB Seattle Masjid.

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<sup>5</sup> Ibid; p.1

TSI's Sunday peak hourly count data for community gathering was factored arbitrarily by .75 to arrive at an equivalent of weekday prayer service traffic volume when weekday prayer services are almost completely different than community gatherings. This is inappropriate in our opinion and especially so given that there was a full year of weekday event data available.

Typical PM peak hour weekday project traffic volumes are likely well in excess of 20 vehicles today based on available but unutilized AEB data, and of course much more so in the future. 2012-2013 data shows 66 weekdays with 20 or more parked vehicles. The average number would be well over the 20 threshold that is implied as the significant adverse impact datum, and that is without expanding for growth.

This trip generator has a complex events utilization pattern that is most confidently dealt with using the year of available events count data as opposed to attempting to extrapolate from an incomplete general Activities Matrix for potential events and converting that somehow to vehicular trip generation.

The project growth forecast should have been data driven using the existing number of prayer rugs (equivalent to the seating independent variable for Churches) or prayer rugs area and then compared to the proposed number in the new facility. We suspect that would represent a substantial increase in membership and vehicular trip generation.

Traffic impact analysis guidelines require assessment of impacts at full development and while AEB may claim they do not expect much growth, their facility plan says otherwise. Artificial limitation to three years does not address this issue. If AEB believes their claim they should limit the facility to the size that supports the current membership.

The trip routings necessary to overcome making U-turns at the 154<sup>th</sup> Ave NE intersection with NE 51<sup>st</sup> St are significantly out of the way and unintuitive for most of the project's trips. Accordingly there is likely to be numerous U-turns at this intersection.