DAVID EVANS
AND ASSOCIATES INC.

MEMORANDUM

DATE: May 29, 2019

TO: City of Beaverton Planning Commission

FROM: Josh Anderson, PE, PTOE

SUBJECT: Response to Transportation Issues Raised in Testimony by May 15, 2019

PROJECT: LTFR 0000-0001
Life Time Fitness TIA

CC: Jinde Zhu – Washington County
Avi Tayar - ODOT

On May 15, 2019, the Planning Commission held a public hearing regarding Life Time's application (ADJ2018-0006/DR 2018-0128/LD2019-0008/LO2018-0005/SDM2018-0007/TP2018-0009) to develop a fitness facility with tennis courts[1] and shared office space in the City of Beaverton (the "City"). The purpose of this memorandum is to respond to submitted testimony regarding traffic impacts from Life Time's facility.

Life Time's Traffic Impact Analysis ("TIA") analyzes traffic at nine intersections in the vicinity of Life Time's proposed facility as prescribed by the City. The TIA includes three main components: (1) a study of existing traffic conditions ("Existing Conditions"); (2) a study of future traffic conditions, as they are anticipated to exist if Life Time's facility is *not* constructed ("Background Conditions"); and (3) a study of future traffic conditions as they are anticipated to exist if Life Time's facility *is* constructed ("Project Conditions"). The TIA compares Project Conditions to Existing and Background Conditions to determine which transportation improvements are necessary to mitigate the predicted traffic impacts from Life Time's proposed facility.

Much of the public testimony related to the TIA concerned trip generation. Trip generation refers to the volume of traffic, or "trips," anticipated to be generated by Life Time's proposed facility. Trip generation analysis is necessarily forward looking—it is an estimate of *future* trips, based on existing, known data. Per the City's Development Code ("Code" or "BDC"), trip generation is analyzed for peak traffic periods (i.e., morning and evening commute hours). BDC 60.55.20(4)(D)(3).

Several commenters asserted that Life Time relied on inappropriate data or assumptions to estimate the number of trips generated by Life Time's proposed facility during peak traffic periods. To respond to these comments, this memorandum will provide a short overview of the methodology used to calculate Life Time's trips. Then, this memorandum will address specific questions about Life Time's trip generation calculations.

[1] Following the public hearing, in response to comments, Life Time modified its application to eliminate the tennis use and to expand the office use. Those modifications are addressed in Addendum 5 to the TIA, which demonstrates that removal of the tennis facility and expansion of the office use results in a *decrease* in trip generation. Although Life Time proposes to eliminate the tennis use, this memorandum discusses tennis-related traffic analysis that was included in the original TIA, submitted in February 2019.

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Overview of Trip Generation Analysis

The Code prescribes baseline requirements for estimating trip generation. In general, trip generation is calculated based on rates published by the Institute of Transportation Engineers ("ITE"). *See* BDC 60.55.20(4)(D)(3)(a). The ITE assembles data from thousands of individual traffic studies conducted throughout the United States to assign trip generation rates based on land use. Trip generation rates are then calculated on a square footage or per unit basis. For example, Health/Fitness Clubs are assumed to generate 3.45 trips per 1,000 square feet of building area. These trip generation rates are published in ITE's Trip Generation Manual.

Although the ITE rates are the default method for estimating trip generation, the Code allows different rates to be used if so justified. The Code provides:

> Trip generation estimates shall be based on ITE's Trip Generation (latest published edition). The City Engineer may approve different trip generation rates when trip generation rates are not available in ITE's Trip Generation or different rates are justified.

BDC 60.55.20(4)(D)(3)(a).

In this case, Life Time compared trip generation estimates for the proposed facility based on three data sources, including the ITE Trip Generation Manual, and ultimately used the trip generation methodology that was the most conservative (i.e., estimated the greatest number of trips). The methods include:

1. Trip generation rates determined in a 2007 study prepared by TRC Engineers, Inc., titled *Life Time Fitness Centers: Traffic & Parking Design Characteristics* (the "2007 Traffic Study"), based on traffic counts that were collected at five existing Lift Time facilities;
2. Trip generation rates in the ITE Trip Generation Manual; and
3. Trip generation rates assumed by Villa Sport in its 2012 application for development in the City, based on traffic counts that were collected at two existing Villa Sport facilities.

For each method, trip generation rates were applied to the size of Life Time's proposed facility. For example, the Villa Sport application assumed a trip generation rate of 3.86 peak evening hour trips per 1,000 square feet of building space. To determine Life Time's peak evening hour trips based on the Villa Sport rate, 3.86 was multiplied by the square footage of Life Time's fitness facility (140,000 square feet). In addition to calculating trips for the proposed fitness facility, trips were added to account for Life Time's proposed tennis and office space uses.

Table 1, on the following page, shows Life Time's calculated peak evening hour trips using each of the three trip generation methods. As shown in the table, the 2007 Traffic Study results in the highest, and therefore most conservative, estimated traffic volume. Based on the trip generation rates from the 2007 Traffic Study, Life Time's proposed uses (including the fitness facility, tennis courts, and office space) were estimated to generate a total of **506** trips during the peak evening hour. This is nearly 100 more peak evening hour trips than would be anticipated using the Villa Sport trip generation rate and is 132 more peak evening hour trips

than would be anticipated using the ITE Trip Generation Manual rate resulting in the most conservative approach for applying trip generation rates being utilized in the TIA.

DEA prepared the Life Time TIA using the trip generation rates from the 2007 Traffic Study. Use of the trip generation rates from the 2007 Traffic Study was approved by Jabra Khasho (City of Beaverton Traffic Engineer), Jinde Zhu (Washington County Traffic Engineer), and Abraham Tayar (ODOT development review). The trip generation assumptions are also discussed in greater detail in Appendix 22b (TIA Addendum 2) of Life Time's application.

Table 1 – Comparison of Trip Generation Methods

Land Use	Data Source	Size		Trip Generation Rates for PM Peak Hour [1]			Trips During PM Peak Hour [1]			Pass By		Trips (Without Pass-By) During PM Peak Hour [1]		
				Total	In	Out	Total	In	Out	%	Trips	Total	In	Out
Method 1: 2007 Traffic Study (SELECTED)														
Fitness Facility	2007 Study	140	1,000 sf	4.35	0.59	0.41	609	359	250	29%	177	432	255	177
Racquet/Tennis Club	ITE	10	courts	3.82	0.50	0.50	38	19	19	NA	0	38	19	19
Office	ITE	31.17	1,000 sf	1.15	0.16	0.84	36	6	30	NA	0	36	6	30
											Total net new trips after pass-by reduction:	**506**		
Method 2: Villa Sport Traffic Study														
Fitness Facility	Villa Sport	140	1,000 sf	3.86	0.52	0.48	540	281	259	38%	205	335	174	161
Racquet/Tennis Club	ITE	10	courts	3.82	0.50	0.50	38	19	19	NA	0	38	19	19
Office	ITE	31.17	1,000 sf	1.15	0.16	0.84	36	6	30	NA	0	36	6	30
											Total net new trips after pass-by reduction:	**409**		
Method 3: ITE Trip Generation Rates														
Health/Fitness Club	ITE	140	1,000 sf	3.45	0.57	0.43	483	275	208	38%	183	300	171	129
Racquet/Tennis Club	ITE	10	courts	3.82	0.50	0.50	38	19	19	NA	0	38	19	19
Office	ITE	31.17	1,000 sf	1.15	0.16	0.84	36	6	30	NA	0	36	6	30
											Total net new trips after pass-by reduction:	**374**		

[1] – NOTE: The PM peak hour is shown above as it is the hour of the day with high trip generation rates and the highest level of adjacent street traffic volumes.

Response to Comments

Having provided an overview of the methodology used to estimate the volume of Life Time's future traffic, this section will respond to specific comments concerning Life Time's TIA.

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1. Is the data from 2007 Traffic Study outdated?

Ultimately, Life Time chooses to continue to utilize the 2007 Traffic Study because it is the most conservate trip generation estimate that is available when they are no nearby existing Life Time facilities to study. The trip generation rates from the 2007 Traffic Study are significantly higher than the ITE Trip Generation Rates and higher than the trip generation rates relied on by a comparable local facility (Villa Sport). Further, as discussed below, the trip generation rates from the 2007 Traffic Study are substantially greater than rates from recent trip generation studies that were prepared based on a smaller number of Life Time facilities.

The five facilities that were studied in the 2007 Traffic Study are shown in Table 2, below, with their associated average monthly member swipes from 2007 compared to monthly member swipes in 2018. As you can see, the average number of monthly visits to these facilities has slightly decreased, further representing the accuracy of relying on the data from 2007.

Table 2 – Comparison of Member Swipe Data from 2007 and 2018

Club	Club Membership Level	2007 Average Monthly Swipe Swipes	2018 Average Monthly Member Swipes
Bloomingdale, IL	Gold	72,466	66,627
Plano, TX	Platinum	75,973	67,292
Shelby, MI	Gold	66,437	67,841
Tempe, AZ	Bronze	66,526	71,653
Warrenville, IL	Gold	75,599	75,089
Total Average Monthly Swipes	N/A	**71,400**	**69,700**

2. The facilities that were evaluated in the 2007 Traffic Study are smaller than the facility that Life Time proposes to build in Beaverton. Given that size difference, are the trip counts from the 2007 Traffic Study relevant to the proposed facility?

As discussed above, estimated trip generation is calculated based on a ratio that applies per 1,000 square feet of a facility's size. Because trip generation is based upon a ratio, variability in the size of facilities does not impact the reliability of the analysis. Instead, the difference in size of the facilities studied in the 2007 Traffic Study and the proposed facility are captured by multiplying the facility's square footage by the normalized trip generation rate. Specifically, the existing clubs evaluated in the 2007 Traffic Study generated 4.35 trips per 1,000 square feet, which is the ratio that was applied to the Beaverton proposal.

Moreover, based on Life Time's business strategy, a larger facility does not necessarily equate to a larger number of trips. Life Time's business model is to provide a second-to-none experience in a resort-like environment, which includes providing a spacious, uncrowded environment. Diamond-level membership

facilities, like proposed in Beaverton, do not reflect the overall size of the facility, but rather higher membership dues. For example, the planned 46,000 square foot San Clemente, CA club will also be a Diamond-level facility.

This model results in fewer memberships at a higher price point. So, rather than having 10,000-plus memberships with $69 per month dues, Life Time's plan for a Diamond-level club in Beaverton is to have 6,000–7,000 memberships with an average of $200 per month in dues.

3. Were the traffic counts from the 2007 Traffic Study taken during the Recession? If so, wouldn't they be higher now?

The Recession began in December 2007 and ended in June 2009.[2] The traffic counts from the 2007 Traffic Study were collected in February, March, and April of 2007. Therefore, trip counts from the 2007 Traffic Study would not have been impacted by the Recession. Regardless of the timing of the Recession, the data presented in Table 2 shows that member attendance in 2007 is consistent with Life Time member attendance in 2018.

4. The traffic counts from the 2007 Traffic Study were taken during the spring months. Would traffic counts be higher during summer months when people use outdoor pools?

Life Time provides both indoor and outdoor pools. In warmer months, when the outdoor pools are in use, there is minimal use of the indoor pools. Conversely, in cooler months, when the outdoor pools are closed, the indoor pools are used more heavily. Table 3, below, illustrates that the average number of swipes per month for all of 2007 (71,400 swipes/month) is lower than the average number of swipes per month for the period of the 2007 Traffic Study, which occurred in February through April 2007 (75,074 swipes/month). In other words, the period of the 2007 Traffic Study represented **higher-than-average** club attendance for 2007.

Table 3 – 2007 Monthly Member Swipe Data

Club	Average Number of Monthly Swipes in 2007	Average Number of Monthly Swipes in 2007 Traffic Study Period (February - April 2007)
Bloomingdale, IL	72,466	76,103
Plano, TX	75,973	78,064
Shelby, MI	66,437	73,213
Tempe, AZ	66,526	67,347
Warrenville, IL	75,599	80,641
Total Average Monthly Swipes	**71,400**	**75,074**

[2] Fed. Res. Bank of N.Y., *The Great Recession* (Nov. 22, 2013), https://www.federalreservehistory.org/essays/great_recession_of_200709.

5. The facilities that were evaluated in the 2007 Traffic Study are in different locations than Beaverton. Given the geographical and demographic differences, are the trip counts from the 2007 Traffic Study relevant to the proposed facility?

The 2007 Traffic Study considered traffic at five different Life Time clubs, representing a range of geographies and communities. At present, there is no Life Time facility in the Beaverton area, or elsewhere in Oregon. Life Time considered the trip generation analysis that was completed for a comparable local facility (Villa Sport). However, Life Time elected to use the trip generation data from the 2007 Traffic Study, because the 2007 Traffic Study produced more conservative (i.e., higher volume) trip rates than the trip generation rates relied on by the local facility.

6. Why are the traffic counts from the 2007 Traffic Study different from Life Time's 2008 10-k filing with the SEC, which stated that the average number of monthly visits per fitness facility in 2007 was 68,000?

The SEC filing reports average total monthly visitors. By contrast, the 2007 Traffic Study measured peak hour trips; the 2007 Traffic Study did *not* measure trips that occurred outside of the peak hours. For that reason, the 2007 Traffic Study is not a measure of total daily trips. In addition, the SEC filing reports *visitors*, while the 2007 Traffic Study reports *trips*. The number of trips in any given day is likely to be substantially fewer than the number of visitors due to the number of members who visit the club with a partner, dependent, or guest. For those reasons, the number of *visitors* reported in the SEC filing is not comparable to the number of peak hour *trips* reported in the 2007 Traffic Study.

7. Life Time prepared traffic studies for a facility in Lake Zurich, Illinois in April 2018 and for a facility in Roseville, California in May 2013. Since those traffic studies are more recent than the 2007 Traffic Study, why were they not used to estimate trip generation for the proposed facility in Beaverton?

In 2013, Fehr & Peers prepared a TIA (the "2013 TIA") for a proposed Life Time facility in Roseville, California. The 2013 TIA relied on a trip generation study that was completed by Atlantic Traffic and Design Engineers, Inc. in 2012, which evaluated trip counts at two (2) Life Time facilities. Based on the study of those facilities, peak evening hour trips were estimated at 3.57 trips per 1,000 square feet of building area.

In 2018, Gewalt Hamilton Associates, Inc. prepared a TIA (the "2018 TIA") for a proposed Life Time facility in Lake Zurich, Illinois. The 2018 TIA relied on a trip generation study that was prepared based on traffic counts at one (1) Life Time facility, located in nearby Vernon Hills, Illinois. Based on the study of the Vernon Hills facility, peak evening hour trips were estimated at 3.09 trips per 1,0000 square feet of building area.

The 2013 TIA and 2018 TIA estimated trip generation rates based on consideration of two (2) and one (1) Life Time facilities, respectively. By contrast, the 2007 Traffic Study that was utilized to prepare this TIA for the proposed facility is based on trip counts from five (5) Life Time facilities. In addition, the trip generation rates from the 2007 Traffic Study are significantly more conservative than the trip generation rates used in the 2013 TIA and 2018 TIA. The 2007 Traffic Study estimates 4.35 peak evening hour trips per 1,000 square feet of building area, while the 2013 TIA and 2018 TIA estimate 3.57 and 3.09 trips, respectively. As discussed in

preceding sections, Life Time chose to rely on the most conservative trip generation study, the 2007 Traffic Study.

8. Traffic has gotten much worse in the area since 2007. Why is this project relying upon a 2007 Traffic Study?

As detailed elsewhere, the 2007 Traffic Study is the basis for estimating the traffic generated by Life Time's proposed facility (plus office and tennis). The analysis of existing traffic, which is a part of the analysis of "Background Conditions," was based upon current traffic counts; **not** the 2007 Traffic Study.

9. The 2007 Traffic Study determined that 29 percent of Life Time's trips are "pass-by" trips. Is that number justified?

The 2007 Traffic Study determined pass-by rates based on interviews with Life Time members at five different existing facilities. The pass-by rate determined from the 2007 Traffic Study (29 percent) is significantly lower, and therefore more conservative, than the pass-by rate from the ITE Trip Generation Manual (38 percent) and the pass-by rate assumed in the Villa Sport application (38 percent).

In fact, the pass-by rate in Life Time's TIA is likely overconservative. Access to Life Time's coworking space includes a built-in membership to Life Time's fitness facility. Undoubtedly, persons who pay for memberships to use Life Time's coworking space do so with the intent to utilize Life Time's fitness facilities. For these Life Time members, use of the coworking space and use of the fitness facilities generally would not generate separate trips. Persons who travel to Life Time's facility to work, and who access the fitness facility before, after or during the workday, would generate only one set of trips (morning and evening). This efficiency, however, is not included in Life Time's trip generation calculations. Life Time's TIA assumes that **0 percent** of the trips to Life Time's coworking space or tennis facility are pass-by trips. In other words, Life Time's TIA assumes that trips generated by the coworking space and tennis facility are wholly independent from the trips generated by the fitness facility, and neither fitness facility nor coworking space trip estimates are reduced to reflect persons who make a single round trip to use both the coworking or tennis spaces and the fitness facility.

10. In addition to certain of the above comments, the following comments were raised by Kittelson & Associates, Inc. ("Kittelson") in a letter dated May 14, 2019:

    a. Potential calculation errors in the 2007 Traffic Study:

With respect to the 2007 Traffic Study, the Kittelson letter asserts that the rates cited for the "peak hour of the generator" may not be less than those reported for the "peak hour of adjacent street." The Beaverton TIA relied upon the values for the "peak hour of adjacent street." As such, this comment is not applicable to the Beaverton TIA.

    b. Unexplained assumptions for existing conditions:

The Kittelson letter notes that, at two of the studied intersections, the traffic counts collected in 2017 were *lower* than the traffic counts collected in 2012 for the Sunset Station and Barnes Road PUD. Although DEA staff

did not participate in the traffic analysis completed in 2012, and therefore cannot speak to that data, we can confirm that the 2017 traffic counts at all intersections were collected in accordance with City standards.

c. Unreliable individual lane v/c ratio calculations:

With respect to the intersection of SW Cedar Hills Boulevard and SW Barnes Road, the Kittelson letter states that the overall intersection v/c ratio cannot be greater than each individual lane v/c ratio, because the overall ratio is the weighted average of the ratios for the individual lanes. Despite this statement, the Synchro operational results provided in Appendix 1 show that the overall v/c for the intersection of SW Cedar Hills Boulevard and SW Barnes Road is 1.01, while the v/c ratio for each movement does not exceed 0.98. We have found this to be a limitation of the Synchro program when reporting HCM 2000 signalized reports (as was agreed upon with City staff in the scoping of the TIA). The City's standard for v/c ratios applies to individual movements. Therefore, the intersection meets the City and County standards as all movements have a v/c ratio at or below 0.98.

d. Unaddressed queuing deficiencies:

The City of Beaverton and Washington County operational standards are based on lane group v/c ratio and overall intersection v/c ratio, respectively. Neither agency has standards that require the mitigation of queuing deficiencies, unless such deficiencies create a safety concern. The Oregon Department of Transportation ("ODOT") is the only reviewing agency that has queuing standards. ODOT's queuing standards require that, if an interchange ramp terminal has an overall intersection v/c ratio above 0.85, then queuing must be evaluated to ensure that the queuing does not extend into the safe deceleration length of an exit ramp. This ODOT criterion has been met.

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APPENDIX A: Example HCM 2000 Operational Summary

HCM Signalized Intersection Capacity Analysis — PM Build (2021) Conditions - Mitigated
10: SW Cedar Hills Blvd & SW Barnes Rd — 01/22/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	445	715	470	870	250	635	665	370	80	390	140
Future Volume (vph)	160	445	715	470	870	250	635	665	370	80	390	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0	4.0	4.0		4.0	4.0	5.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	0.88	0.97	0.95		0.97	1.00	1.00	1.00	*0.77	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	2787	3433	3421		3433	1863	1583	1770	2755	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	2787	3433	3421		3433	1863	1583	1770	2755	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	165	459	737	485	897	258	655	686	381	82	402	144
RTOR Reduction (vph)	0	0	72	0	22	0	0	0	46	0	21	0
Lane Group Flow (vph)	165	459	665	485	1133	0	655	686	335	82	525	0
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	NA	pt+ov	Prot	NA	
Protected Phases	1	6	6 7	5	2		7	4	4 5	3	8	
Permitted Phases												
Actuated Green, G (s)	12.0	31.7	56.5	19.2	39.9		24.8	44.0	68.2	6.1	24.3	
Effective Green, g (s)	12.0	32.7	56.5	20.2	40.9		25.8	45.0	68.2	6.1	25.3	
Actuated g/C Ratio	0.10	0.27	0.47	0.17	0.34		0.22	0.38	0.57	0.05	0.21	
Clearance Time (s)	4.0	5.0		5.0	5.0		5.0	5.0		4.0	5.0	
Vehicle Extension (s)	1.5	3.1		2.0	3.1		2.0	3.1		1.5	3.1	
Lane Grp Cap (vph)	177	964	1312	577	1165		738	698	899	89	580	
v/s Ratio Prot	0.09	0.13	0.24	c0.14	c0.33		0.19	c0.37	0.21	0.05	c0.19	
v/s Ratio Perm												
v/c Ratio	0.93	0.48	0.51	0.84	0.97		0.89	0.98	0.37	0.92	0.91	
Uniform Delay, d1	53.6	36.5	22.1	48.3	39.0		45.7	37.1	14.2	56.7	46.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.12	1.15	1.50	1.00	1.00	
Incremental Delay, d2	47.7	1.7	0.1	10.2	20.5		9.5	25.1	0.2	68.9	17.8	
Delay (s)	101.3	38.2	22.2	58.6	59.5		60.5	67.8	21.5	125.6	64.0	
Level of Service	F	D	C	E	E		E	E	C	F	E	
Approach Delay (s)		37.2			59.2			54.8			72.0	
Approach LOS		D			E			D			E	

Intersection Summary			
HCM 2000 Control Delay	53.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	93.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Life Time Fitness TIA - PM Build (2021) Conditions - Mitigated — Synchro 9 Report
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