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February 26, 2021

Revised March 5, 2021

Stella Blue Ventures, LLC
c/o Mr. Michael Alterman
3715 Northside Parkway
Suite 4-515
Atlanta, GA 30327

**RE: Take 5 Development – Transportation Impact Letter (TIL)
Knoxville / Knox County, Tennessee**

KCI Technologies, Inc. has prepared this memorandum summarizing the expected trip generation for the proposed retail development located in the southwest quadrant of the intersection of Kingston Pike at Winston Road. The information is intended to address the comments in the *Pre-Submittal Transportation Impact Analysis Scope Determination Form*, dated January 5, 2021.

Based on the site plan (date 12/4/2020), the development proposes one 1,431 SF oil change building (three service positions) and one 550 SF drive-thru coffee shop. The coffee shop does not have indoor seating.

Site Access

Kingston Pike is a four-lane roadway with a center two-way left-turn lane. Winston Road is a two-lane road. The property proposes two access driveways – one along Kingston Pike and Winston Road. Both driveways will allow two-way traffic and operate with stop-control for exiting vehicles. Vehicles are expected to find gaps in traffic to be able to enter and exit at either driveway.

Site Circulation

The site plan provides site circulation – allowing drivers to enter and exit at either driveway of their choice. Upon entering the site, drivers can access either retail use. Drivers will circulate clockwise around the proposed Scooters coffee building. The site layout accommodates nine large SUV type vehicles without impacting the driveway at Kingston Pike. This is greater than the minimum required by the ordinance (4 vehicles for restaurant use). Drivers to the Take 5 retail use will enter at the south side of the building and exit at the north side.

Estimated Site Traffic

Traffic anticipated to be generated by the retail uses was based on the Trip Generation Manual, 10th Edition, by the Institute of Transportation Engineers (ITE). This is the nationally recognized database which provides trip generation estimates for multiple land uses. For this development, site traffic was estimated for the typical weekday daily, AM peak hour, and PM peak hour volumes for a quick

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lubrication vehicle shop (LU code 941) and a coffee/donut shop with drive through window and no indoor seating (LU code 938). **Table 1** summarizes the results. The total number of vehicles (both entering and exiting) the site on a weekday is estimated to be 1,220 vehicles. The total number of vehicles during the AM peak hour is 194 vehicles and during the PM peak hour is 61 vehicles.

TABLE 1 - TRIP GENERATION Take 5 Development										
Land Use		Units	Intensity	Daily Trips	AM Peak Hour of Adjacent Street			PM Peak Hour of Adjacent Street		
				Two-way	Total	In	Out	Total	In	Out
938	Coffee/Donut Shop with Drive-Through Window and No Indoor Seating	SF	550	1,100	185	93	92	46	23	23
941	Quick Lubrication Vehicle Shop	servicing positions	3	120	9	6	3	15	8	7
Driveway Volumes				1,220	194	99	95	61	31	30

Notes: Trip Generation Rates based on ITE Trip Generation, 10th Edition

Pass-by reduction for the restaurant use equals 49% during the AM peak hour, and 50% during the PM peak hour and daily.

On-site queuing

Based on information provided by the proposed small coffee shop tenant, an estimate of on-site queueing for this use was performed. The coffee shop tenant, Scooters, has a store operations method to maximize the speed of drive-thru service. The business holds their employees to an average ticket time of 40 seconds per vehicle (from order to pick up).

An analysis was performed to check the on-site vehicle storage and estimated vehicle queues. Based on the trip generation, an estimated ninety-three (93) vehicles enter in the AM peak hour. Assuming a peak hour factor of 0.85, the number of vehicles arriving during the peak 15-minute period is 28 vehicles, or a rate of 1 vehicle every 32 seconds. Based on the departure rate of 1 vehicles every 40 seconds, the number of vehicles which have departed after the peak 15-minute period is 22.5. The expected queue at the end of the peak 15 minutes is 5.5 vehicles. Table 2 summarizes the queueing analysis.

Table 2: Queuing Analysis		
	Vehicles	Rate
Entering/Arrivals	28	1 vehicle every 32 seconds
Exiting/Departures	22.5	1 vehicle every 40 seconds
Expected queue at end of 15 minutes	5.5	-

The vehicle queue will not grow indefinitely because the following 15 minutes is expected to have fewer arriving vehicles. The site layout accommodates nine large SUV type vehicles without impacting the driveway at Kingston Pike; therefore, the development is expected to provide enough on-site storage for vehicle queuing.

The Take 5 retail use provide three service positions and vehicle queue space at the building entrance (south side). One vehicle can be queued (waiting) to enter all three service positions without impacting site circulation; the internal vehicle route.

This memorandum provides an estimate of traffic volumes for the site. The actual traffic volumes may vary.

Please contact me if there are any questions.

Prepared by:
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Sr. Project Manager

