Hexagon Transportation Consultants, Inc.

Memorandum

Date: June 7, 2021

To: Mr. Isadore Netto

From: Michelle Hunt
Ling Jin

Subject: Transportation Operation Analysis for the Proposed Agape Daycare at 3700 Thomas Road in Santa Clara, CA California

Hexagon Transportation Consultants, Inc. has completed a transportation operation analysis for the proposed Agape Daycare at 3700 Thomas Road, Suite 107 in Santa Clara, California. The project proposes to occupy an existing 1,880 square-foot vacant space with a daycare center for up to 30 pre-school children and 5 teaching staff. The site formerly was occupied by Tulip Kids - a preschool/childcare/after school center, which has been vacant since March 2020. The project also proposes to enclose the open space east of the building with a fence to allow outdoor activity associated with the childcare. The proposed daycare would operate between 8:00 AM and 6:00 PM on weekdays (Monday – Friday). The proposed daycare would share the existing parking spaces with all of the other commercial uses on site. Vehicular access to the project site would be provided via the existing driveway on Thomas Road. The project site plan is shown on Figure 1.

Scope of Study

The purpose of the transportation study is to identify any traffic operation or parking impacts associated with the project. The project would re-occupy a preschool/childcare center. It is estimated that the project would generate approximately the same number of vehicle trips as the previous use. Therefore, neither a vehicle-mile-travelled (VMT) analysis nor an intersection level of service analysis is required. This study includes a queuing analysis on northbound Thomas Road at Montague Expressway to evaluate the egress from the project site during the AM and PM peak hours.

Project Trip Estimates

Through empirical research, data have been collected that quantify the amount of traffic produced by many types of land uses. Standard trip generation rates can be applied to predict the future traffic increases that would result from a new development. The magnitude of traffic added to the roadway system by a particular development is estimated by multiplying the applicable trip generation rates by the size of the development. For the purpose of this study, the trip generation rates published in the Institute of Transportation Engineers' (ITE) manual entitled *Trip Generation, 10th Edition (*2017) for Daycare Center (Land Use Code 565) were used to estimate the trips generated by the proposed project. As shown in Table 1, the project is estimated to generate 123 daily vehicle trips, with 23 trips occurring during the AM peak hour and 24 trips during the PM peak hour.

Table 1
Project Trip Generation Estimates

Land Use	Size	Daily Rate	Daily Trips	AM Peak Hour Pk-Hr Rate	AM In	AM Out	AM Total	PM Peak Hour Pk-Hr Rate	PM In	PM Out	PM Total
Proposed Use											
Daycare Center [1]	30 students	4.09	123	0.78	12	11	23	0.79	11	13	24
Previous Use											
Tulip Kids (childcare)[1]	25 students	4.09	102	0.78	10	9	20	0.79	9	11	20
Net New Trips:			20		2	2	4		2	2	4

Notes:
[1] Trip generation based on average rates contained in the *ITE Trip Generation Manual, 10th Edition*, for Daycare Center (Land Use 565) located in a General Urban/Suburban setting. Rates are expressed in trips per student.

The project site formerly was occupied by Tulip Kids, preschool/childcare/after school center with an enrollment of 25 students. Tulip Kids has been vacant since March 2020. The proposed project is eligible to receive credit for trips generated by the previous use on the site. The traffic generated by the previous use was estimated by applying the same peak hour trip rates as for the project (Daycare Center - Land Use Code 565). The total number of trips generated by the previous use was deducted from the estimated number of trips generated by the proposed project, which results in a net increase of 4 trips in the AM peak hour and 4 trips in the PM peak hour.

Senate Bill (SB) 743 changed the way transportation impacts are identified under CEQA from level of service (LOS) to vehicle miles travelled (VMT). The City of Santa Clara adopted updated Transportation Analysis Policy (June 23, 2020) that set forth new procedures and thresholds for VMT. The updated Policy also lists certain developments should be exempt from VMT analysis with a presumption of less than significant impact if a project is likely to reduce VMT. The proposed daycare would reoccupy existing building space and would generate less than 110 additional vehicle trips per day, which would meet the exemption criteria and so a vehicle-mile-travelled (VMT) analysis would not be required.

The proposed daycare would not add more than 10 trips per lane to any nearby intersections, therefore an intersection level of service analysis would not be required either.

Site Access and On-Site Circulation

The site access and drop-off/pick-up evaluations are based on the site plan prepared by K+Designs (see Figure 1) dated 5/4/2021. The project would not alter the parking layout or walkways. Site access was evaluated to determine the adequacy of the site's driveway with regard to traffic volume and vehicle queues. Drop-off/Pick-up and parking analysis were discussed in accordance with generally accepted traffic engineering standards and transportation planning principles.

(E) SITE PLAN KEY NOTES — Indicated on plan by (#)

1. (E) DRIVEWAY
2. (E) DRIVE ASILE
3. (E) PARKING STALLS, STANDARD; TOTAL OF (15).
4. (E) PARKING STALLS, COMPACT; TOTAL OF (16).
5. (E) ACCESSIBLE PARKING STALL, STANDARD.
6. (E) ACCESSIBLE PARKING STALL, VAN ACCESSIBLE.
7. (E) PARKING STALLS, SHORT TERM PARKING (10 MIN.); TOTAL OF (5).
8. (E) TRASH ENCLOSURE
9. (E) RESTROOMS, SHARED BY ALL TENANTS AND RETAIL PATRONS

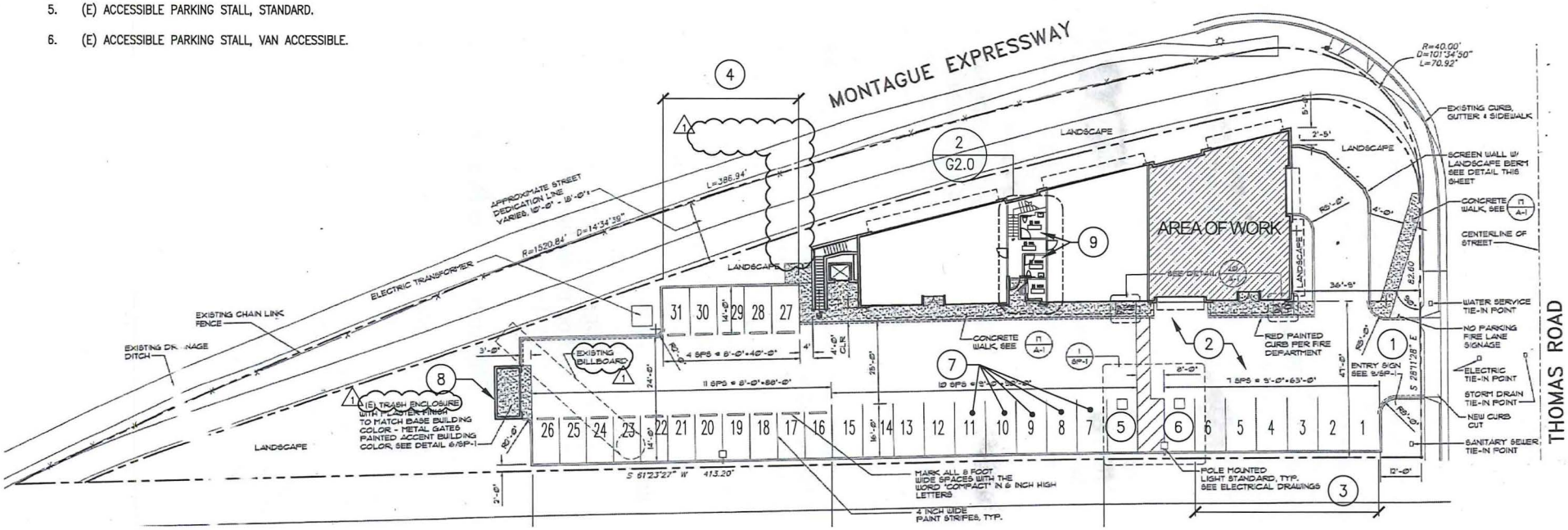

Figure 1
Proposed Site Plan

NORTH
Not to Scale

Site Access

Vehicular access to the project site would be provided via the existing full-access driveway on Thomas Road. The proposed daycare is estimated to generate 23 vehicle trips (12 inbound and 11 outbound) during the AM peak hour and 24 vehicles trips (11 inbound and 13 outbound) during the PM peak hour, which equates to approximately one vehicle trip every three minutes during both the AM and PM peak periods of traffic. The proposed daycare is replacing the former Tulip Kids childcare center and would add only 4 more trips in the AM peak hour and 4 more trips in the PM peak hour above the traffic generated by the previous use. The small increase in project-generated trips at the driveway are not expected to cause significant operational issues related to vehicle queueing or delay.

The project driveway should be free and clear of any obstructions to optimize sight distance, thereby ensuring that exiting vehicles can see other vehicles traveling along Thomas Road. The project proposes to enclose the open space east of the building with a fence to allow outdoor activity associated with childcare. Landscaping and parking should not conflict with a driver's ability to locate a gap in traffic.

Sight distance requirements vary depending on the roadway speeds. The speed limit on Thomas Road is 25 mph. The Caltrans recommended stopping sight distance at 25 mph is 150 feet. On-street parking is not allowed on either side of Thomas Road near the project driveway. There are no roadway curves or tall structures that would obstruct a driver's ability to see 150 feet to the south on Thomas Road. Thus, the sight distance looking south on Thomas Road is adequate.

The existing driveway is located 90 feet south of Montague Expressway. Outbound vehicles at the site driveway would be able to see vehicles waiting to turn left from westbound Montague Expressway and southbound through traffic on Mission College Boulevard, which are about 220 to 250 feet away, respectively. The proposed new fence that would enclose the open space east of the building would reduce the ability of outbound driveway traffic to see vehicles turning right from eastbound Montage Expressway to Thomas Road. Right-turn traffic is expected to travel at lower speeds while making turns. Based on the curb radius, vehicles slow to a maximum of approximately 15 mph when turning right. The recommended stopping sight distance would be 100 feet for a design speed of 15 mph. Measured on the current site plan with the proposed fence, outbound drivers at the project driveway would still be able to see eastbound right-turn vehicles 115 feet away on Montague Expressway, which would be more than adequate for the expected vehicle speeds.

Queuing Analysis

Queuing and delay for traffic on northbound Thomas Road at Montague Expressway were analyzed because of the close proximity of the project site driveway. The queuing analysis is based on peak hour traffic volumes at the intersection collected prior to the COVID-19 pandemic (AM peak-hour counts: 4/9/2019; PM peak-hour counts: 11/8/2018).

Vehicle queues were estimated using a Poisson probability distribution. The basis of the analysis is as follows: (1) the Poisson probability distribution is used to estimate the 95th percentile maximum number of queued vehicles per signal cycle for a particular movement; (2) the estimated maximum number of vehicles in the queue is translated into a queue length, assuming 25 feet per vehicle; and (3) the estimated maximum queue length is compared to the existing or planned available storage capacity for the movement.

The vehicle storage on Thomas Road for the northbound left turn pocket is about 125 feet while the project driveway on Thomas Road is located about 90 feet south of the intersection of Thomas

Road/Mission College Boulevard and Montague Expressway. The queuing analysis indicates that the maximum queue for the northbound left-turn movement on Thomas Road currently exceeds the existing vehicle storage capacity by eight vehicles during the AM peak hour and by eleven vehicles during the PM peak hour (see Table 2). Thus, the project driveway is frequently blocked by the northbound left-turn queues under existing condition during both AM and PM peak hours. Due to Covid-19, field observations cannot be conducted to assess whether the queues on Thomas Road cause lengthy delays and queueing issues at the site driveway under normal (pre-pandemic) traffic conditions. If on-site queuing is a problem, signage could be used to restrict outbound driveway traffic to right turns only during peak periods. As noted, the existing queuing analysis reflects traffic operations prior to the COVID-19 pandemic when the former Tulip Kids childcare center was in operation. The proposed daycare is expected to add only one vehicle to the northbound left-turn traffic and would not increase the vehicle queue during the AM and PM peak hours. Thus, the project is not expected to substantially affect current driveway operations.

Table 2
Queuing Analysis

	Thomas Rd/Mission College Blvd & Montague Expwy	
Movement:	NBL	NBL
Peak Hour Period:	AM	PM
Existing		
Cycle[1] (sec)	190	190
Volume (vphpl)	149	194
Avg. Queue (veh/ln.)	7.9	10.2
Avg. Queue[2] (ft./ln)	197	256
95th %. Queue (veh/ln.)	13	16
95th %. Queue (ft./ln)	325	400
Storage (ft./ ln.)	125	125
Adequate (Y/N)	**N**	**N**
Existing Plus Project		
Cycle[1] (sec)	190	190
Volume (vphpl)	150	195
Avg. Queue (veh/ln.)	7.9	10.3
Avg. Queue[2] (ft./ln)	198	257
95th %. Queue (veh/ln.)	13	16
95th %. Queue (ft./ln)	325	400
Storage (ft./ ln.)	125	125
Adequate (Y/N)	**N**	**N**

Notes:
[1] Vehicle queue calculations based on cycle length for signalized intersections.
[2] Assumes 25 feet per vehicle queued.

Drop-off and Pick-up

The proposed preschool program is scheduled to start at 8:00 AM and end at 6:00 PM. Between 8:00 AM and 8:25 AM, parents would drop off the 30 students and would pick up the students between 5:45 PM and 6:00 PM.

As discussed in the parking analysis below, the existing parking lot contains 33 vehicle spaces (including 2 accessible spaces) and will be shared by all existing businesses and the new proposed daycare. In the morning, parents will be required to park and walk their child to the daycare entrance where they will sign in using the kiosk located in the reception area. During the PM pick-up period, parents will be required to sign out at the kiosk in the reception area when picking up students. Since all of the parking spaces on site are shared, parents of the preschoolers can use any parking space in the lot including the five short-term parking stalls.

All of the businesses on site do not open until 9:00 AM except for the dental office, which opens at 8:00 AM. Therefore, during the morning drop-off period, most businesses would be closed and there would be more than enough parking spaces for parents to use during the scheduled drop-off period. During the PM pickup period, all businesses on site are still open except for 1-2-3 Acupuncture, which closes at 5:00 PM. Thus, it is recommended that the proposed daycare monitor the parking availability. In case of parking shortage, the daycare could stagger the students pick up times to sufficient parking is available on site for parents when they pick up their child.

Pedestrian, Bicycle and Transit Analysis

Pedestrian facilities consist of sidewalks along the streets in the immediate vicinity of the project site. There are sidewalks along the west side of Thomas Road immediately adjacent the project site. Sidewalks also are available along both sides of Mission College Boulevard. Montague Expressway has sidewalks on both sides of the street west of Thomas Road and only the south side of the street east of Thomas Road. The intersection of Mission College Boulevard/Thomas Road and Montague Expressway has crosswalks on all approaches. The existing network of sidewalks and crosswalks in the study area exhibits good connectivity and would provide parents with safe routes to transit stops in the project area.

The short-term parking spaces are located adjacent to the accessible parking spaces, which are across from the front of the building where the daycare entrance is located. Parents that park in the short-term parking spaces can follow the accessible route across the drive aisle to/from the entrance of the proposed daycare center. There is also a sidewalk along the front of the building that eliminates the need for pedestrians to walk in the drive aisle behind other parked vehicles. The site also has a concrete walkway that connects the sidewalk on Thomas Road and the sidewalk in front of the building.

The project site is located in an industrial park that has few existing bicycle facilities. In the vicinity of the project site, bike lanes are presented along Mission College Boulevard from Wyatt Drive to the Marriott Driveway east of Great America Parkway, however they do not provide immediate access to the project site. It is expected that very few parents would ride bikes to travel to and from the proposed daycare center. Furthermore, the project is expected to have only five teaching staff, so the project is expected to result in few if any bicycle trips.

The project area is served by VTA bus route 59 and the ACE yellow shuttle bus. The closest bus stops are located at the intersection of Mission College Boulevard and Wyatt Drive, which is about 950 feet from the site. It is anticipated that the small number of transit trips generated by the proposed daycare could be accommodated by the current transit service.

Parking Analysis

The existing parking lot will be shared by all existing businesses and the proposed new daycare. The parking requirements shown in Table 3 are based on the City of Santa Clara parking standards (City of Santa Clara Municipal Code Section 18.74.020 - Required off-street parking). The total number of parking spaces required for all commercial uses including the proposed daycare center based on the City's standard parking rates would be 28 vehicle parking spaces. The existing parking lot contains 33 vehicle spaces, which meets the City's parking requirement. The five parking spaces in excess of the minimum zoning code required spaces will help to ensure that there is sufficient parking during the proposed daycare's peak drop-off and pick-up periods.

Table 3
Required Parking Spaces

Unit	Tenant	Rent Space (s.f.)	Parking Requirement	
			Ratio [1]	Required Spaces
#101	Bambu	1,266	1 per 200 s.f.	6
#103	Subway	1,015	1 per 200 s.f.	5
#107	**Proposed Agape Daycare Center**	**2,100**	**1 per classroom or office**	**3**
#203	Dentist Office	1,548	1 per 300 s.f.	5
#207	Santa Clara Custom Chiropractor	1,141	1 per 300 s.f.	4
#211	Vacancy	415	1 per 200 s.f.	2
#215	1-2-3 Acupuncture	853	1 per 300 s.f.	3
	Total	**8,338**		**28**

Notes:
1. Parking requirements based on City of Santa Clara Zoning Code Section 18.74.020 - *Required off-street parking.*

Bicycle Parking Requirements

Designated, safe, and secure bicycle parking facilities shall be provided for all applicable uses in compliance with the Santa Clara County Valley Transportation Authority (VTA), *Bicycle Technical Guidelines*, Section III, Bike Parking. Based on the VTA's guidelines, for Retail Sales/Shopping Center, one Class I (long-term secure bicycle parking) per 30 employees and one Class II (short-term bicycle racks) per 6,000 sq. ft. should be provided.

The bike racks west of the building hold up to 7 bikes, which meets the VTA guidelines for customer/visitor bicycle parking. The total employment on site is unknown but likely less than 30 people at any one time. The bike racks would provide ample parking for both employees and customers/visitors.

Conclusions

Based on the ITE published trip generation rates, the proposed daycare center would only generate 20 additional daily vehicle trips, with a net increase of 4 trips during the AM peak hour and 4 trips in the PM peak hour. Based on the City of Santa Clara adopted updated Transportation Analysis Policy (June 23, 2020), the proposed daycare center would be exempt from VMT analysis. The proposed daycare would not add more than 10 trips per lane to any nearby intersections, therefore an intersection level of service analysis would not be required either.

The project driveway is frequently blocked by the northbound left-turn queues at the Mission College Boulevard/Thomas Road/Montague Expressway intersection under existing conditions during both AM and PM peak hours. Because the project would generate very few additional trips beyond the previous use, the project is not expected to exacerbate the queues on Thomas Road or

the project driveway. If on-site queuing is a problem, signage could be used to restrict outbound driveway traffic to right turns only during peak periods. The site driveway would continue to have adequate sight distance with the proposed new fence.

Student drop off during the morning would work well with the current plan as many of the other businesses on site are not open at that time. Since the scheduled PM student pick-up time would coincide with the operating hours of other businesses on site, the proposed daycare should monitor the parking availability. In case of a parking shortage, the daycare could stagger the students pick up times to ensure that sufficient parking is available on site for parents when they pick up their child.

The existing vehicle and bicycle parking supply on site would meet the City and VTA parking requirements with the proposed daycare center.