



HEXAGON TRANSPORTATION CONSULTANTS, INC.

Memorandum

Date: February 21, 2019
To: Mr. Erick Serrano
From: Brian Jackson
Subject: Parking Demand Study for Multi-Level Public Storage Facilities in Cupertino, CA

Hexagon Transportation Consultants, Inc. has completed parking demand counts at three multi-level Public Storage facilities. The self-storage facilities are located in the neighboring Cities of Sunnyvale (two sites) and San Jose (one site). All three Public Storage site locations were approved by City staff to be counted.

The City of Cupertino plans to use the parking count data to develop a standard parking requirement that can be applied to all future multi-level Public Storage facilities in the City of Cupertino, including a recently proposed Public Storage facility at 20565 Valley Green Drive, to ensure adequate parking supply at the self-storage sites.

A description of each Public Storage site and the parking demand findings are discussed below.

Public Storage Sites

Hexagon conducted parking demand counts at three Public Storage facilities near the City of Cupertino. Based on information provided by the applicant and coordination with City of Cupertino staff, the following three multi-level Public Storage sites were selected to count:

- **Site 1 – 875 E. Arques Avenue in Sunnyvale, CA.** This Public Storage site is not gated and provides 82 parking spaces around the self-storage building. The facility is 216,607 gross square feet (GSF) in size, of which 151,625 SF is net rentable square feet (NRSF). This site has 1,353 self-storage units.
- **Site 2 – 317 Weddell Drive in Sunnyvale, CA.** This Public Storage site has a 19-space parking lot in front of the self-storage building. The parking lot is not gated. The facility is 47,796 GSF in size, of which 34,413 SF is NRSF. This site has 447 self-storage units
- **Site 3 – 5679 Santa Teresa Boulevard in San Jose, CA.** This Public Storage site is gated and provides 4 parking spaces outside the gate and 12 parking spaces inside the gated area. The facility is 70,278 GSF in size, of which 50,600 SF is NRSF. This site has 746 self-storage units.

The Public Storage sites that were counted were selected based on their similar layout and operational characteristics. The manner in which a self-storage facility operates has more influence on parking demand than the overall size of the facility.

Parking Demand Analysis

Each existing Public Storage facility was counted on one weekday and one Saturday between the hours of 6:00 AM and 9:00 PM. These are the standard hours of access for the three Public Storage facilities that were counted. The number of parked vehicles were recorded every 15 minutes.

Weekday Parking Demand

The collected data (see Appendix A) does not show a standard time of day when parking demand peaks during the week at all three Public Storage facilities. Site 1 parking demand peaked at 12:30 PM with 13 vehicles parked. Site 2 parking demand peaked 5:00 PM with 4 vehicles parked. Site 3 parking demand peaked at 6:15 PM with 7 vehicles parked. Based on the maximum observed parking demand at each site, the weighted average peak parking demand on a weekday (see Table 1) is 0.10 space per 1,000 net rentable square foot (NRSF), 0.072 space per 1,000 gross square foot (GSF), or 0.94 space per 100 storage units.

Table 1
Observed Maximum Parking Demand on a Weekday

Site #	Location	Net Rentable Square Feet (NRSF)	Gross Square Feet (GSF)	Storage Units	Weekday Max. Observed Parking Demand	Weekday Demand Rates		
						per 1,000 NRSF	per 1,000 GSF	per 100 units
1	875 E. Arques Av, Sunnyvale	151,625	216,607	1,353	13	0.086	0.060	0.961
2	317 Weddell Dr, Sunnyvale	34,413	47,796	447	4	0.116	0.084	0.895
3	5679 Santa Teresa Bl, San Jose	50,600	70,278	746	7	0.138	0.100	0.938
Weighted Average						0.10	0.072	0.94
Maximum Observed						0.14	0.100	0.96

Weekend Parking Demand

The collected data (see Appendix A) show that parking demand peaks twice on Saturdays at the three Public Storage facilities that were counted. The first peak generally occurs late morning before Noon, and the second peak occurs around 4:00 or 5:00 in the afternoon. Site 1 parking demand peaked at 4:15 PM with 14 vehicles parked. Site 2 parking demand peaked between 3:00 PM and 5:00 PM with 4 vehicles parked during that time. Site 3 parking demand peaked first between 11:30 AM and 1:00 PM and again between 4:30 PM and 6:00 PM with 6 vehicles parked. Based on the maximum observed parking demand at each site, the weighted average peak parking demand on a Saturday (see Table 2) is 0.10 space per 1,000 NRSF, 0.072 space per 1,000 GSF, or 0.94 space per 100 storage units.

Table 2
Observed Maximum Parking Demand on a Saturday

Site #	Location	Net Rentable Square Feet (NRSF)	Gross Square Feet (GSF)	Storage Units	Saturday Max. Observed Parking Demand	Saturday Demand Rates		
						per 1,000 NRSF	per 1,000 GSF	per 100 units
1	875 E. Arques Av, Sunnyvale	151,625	216,607	1,353	14	0.092	0.065	1.035
2	317 Weddell Dr, Sunnyvale	34,413	47,796	447	4	0.116	0.084	0.895
3	5679 Santa Teresa Bl, San Jose	50,600	70,278	746	6	0.119	0.085	0.804
Weighted Average						0.10	0.072	0.94
Maximum Observed						0.12	0.085	1.03

Based on the parking data collected at the three Public Storage sites, it can be concluded that the maximum parking demand at Public Storage sites is the same on a weekday as it is on a weekend.

Bike Parking Demand

Bicycles also were counted at each Public Storage site, although bicycle trips at a self-storage facility are typically very low and often attributable to employees only. The 875 E. Arques Avenue site has a bicycle rack near the main entrance to the building. The other two Public Storage sites do not have bicycle racks. At the 875 E. Arques Avenue site, one bicycle was counted on Thursday, January 17th at 12:30 PM and one bicycle was counted on Saturday, January 19th at 8:30 AM (see Appendix A). No bicycles were observed at the other two Public Storage sites.

Discussion

Based on Hexagon's analysis, the observed average maximum parking demand rate for both weekdays and Saturdays is 0.10 space per 1,000 net rentable square foot (NRSF), 0.072 space per 1,000 gross square foot (GSF), or 0.94 space per 100 storage units. Hexagon recommends the use of the average maximum parking demand rate instead of the absolute maximum parking demand rate to eliminate potential outliers.

For the average maximum parking demand rates, Hexagon recommends that the City consider using the rate based on the number of storage units. The rates based on net rentable square feet and gross square feet are also included as an option for consideration, particularly if the number of storage units is not known at the time, though the NRSF and GSF rates show more variation between sites.

20565 Valley Green Drive Public Storage Parking Requirement

A new multi-level Public Storage facility is being proposed at 20565 Valley Green Drive in Cupertino, California. It is our understanding that the proposed facility would provide 2,400 self-storage units and would operate like the three existing multi-level Public Storage facilities that were counted. Based on the site plan provided, the new facility would total 266,796 gross square feet (GSF) in size, of which approximately 187,000 SF would be net rentable square feet (NRSF).

Applying the parking rate of 0.10 space per 1,000 NRSF equates to a parking requirement of 19 spaces. Applying the parking rate of 0.072 space per 1,000 GSF equates to a parking requirement of 20 spaces (rounded up from 19.2). Applying the parking rate of 0.94 space per 100 storage units (recommended rate) equates to a parking requirement of 23 spaces. Based on the April 6, 2018 plan set, the project is proposing to provide 30 parking spaces, which would be more than adequate to serve the project.

Appendix A
Public Storage Parking Demand Counts

Parking Occupancy - Weekday Counts

Date: January 16 - 22
Counter: Matt, Jo, Kilbee
Job Name: PS Self-Storage Facilities
Location: San Jose/Sunnyvale

	875 E. Arques Avenue, Sunnyvale			317 Weddell Drive, Sunnyvale			5679 Santa Teresa Bl, San Jose		
	Thursday, January 17			Wednesday, January 16			Tuesday, January 22		
	Lot	Cut-Thru	Bikes	Lot	On-Street	Bikes	Inside Lot	Outside Lot	Bikes
6:00AM	3	0	0	0	0	0	4	0	0
6:15AM	3	0	0	0	0	0	4	0	0
6:30AM	3	2	0	0	0	0	4	0	0
6:45AM	2	0	0	0	0	0	4	0	0
7:00AM	4	1	0	0	0	0	4	0	0
7:15AM	3	1	0	0	0	0	5	0	0
7:30AM	4	0	0	0	0	0	5	0	0
7:45 AM	3	0	0	0	0	0	4	0	0
8:00 AM	3	0	0	0	1	0	4	0	0
8:15 AM	4	4	0	0	1	0	4	0	0
8:30 AM	3	0	0	0	1	0	3	0	0
8:45 AM	2	2	0	0	1	0	3	0	0
9:00 AM	2	0	0	0	1	0	4	0	0
9:15 AM	2	0	0	0	1	0	3	0	0
9:30 AM	3	0	0	0	1	0	2	0	0
9:45 AM	2	1	0	1	1	0	2	0	0
10:00 AM	2	0	0	1	1	0	2	0	0
10:15 AM	3	1	0	2	1	0	2	0	0
10:30 AM	4	0	0	3	1	0	2	0	0
10:45 AM	4	1	0	3	1	0	2	0	0
11:00 AM	4	3	0	2	1	0	3	0	0
11:15 AM	5	0	0	1	1	0	2	0	0
11:30 AM	4	0	0	1	1	0	2	0	0
11:45 AM	6	0	0	1	1	0	3	0	0
12:00 PM	5	0	0	1	1	0	2	0	0
12:15 PM	10	2	0	1	1	0	3	0	0
12:30 PM	13	0	1	0	1	0	5	0	0
12:45 PM	9	0	0	0	1	0	4	0	0
1:00 PM	8	0	0	0	0	0	5	0	0
1:15 PM	8	0	0	0	0	0	5	0	0
1:30 PM	6	0	0	1	0	0	4	0	0
1:45 PM	5	4	0	1	0	0	3	0	0
2:00 PM	5	0	0	1	0	0	3	0	0
2:15 PM	9	0	0	1	0	0	3	0	0
2:30 PM	8	0	0	2	0	0	3	0	0
2:45 PM	6	0	0	1	0	0	3	0	0
3:00 PM	6	0	0	1	0	0	3	0	0
3:15 PM	5	0	0	2	0	0	3	0	0
3:30 PM	7	1	0	1	0	0	3	0	0
3:45 PM	5	0	0	3	0	0	3	0	0
4:00 PM	4	0	0	1	0	0	3	0	0
4:15 PM	5	0	0	1	0	0	3	0	0
4:30 PM	4	0	0	1	0	0	3	1	0
4:45 PM	6	0	0	3	0	0	3	1	0
5:00 PM	7	0	0	4	0	0	4	0	0
5:15 PM	7	0	0	1	0	0	5	0	0
5:30 PM	7	0	0	0	0	0	6	0	0
5:45 PM	7	0	0	0	0	0	5	0	0
6:00 PM	6	0	0	0	0	0	6	0	0
6:15 PM	7	0	0	0	0	0	7	0	0
6:30 PM	6	0	0	0	0	0	5	0	0
6:45 PM	8	0	0	0	0	0	4	0	0
7:00 PM	3	0	0	0	0	0	4	0	0
7:15 PM	3	0	0	0	0	0	4	0	0
7:30 PM	5	0	0	0	0	0	4	0	0
7:45 PM	4	1	0	0	0	0	3	0	0
8:00 PM	4	0	0	0	0	0	3	0	0
8:15 PM	5	0	0	0	0	0	3	0	0
8:30 PM	6	0	0	0	0	0	3	0	0
8:45 PM	5	0	0	0	0	0	4	0	0
9:00 PM	3	0	0	0	0	0	3	0	0

Parking Occupancy - Saturday Counts

Dates: January 19 - 26
 Counter: Matt, Jo, Kilbee
 Job Name: PS Self-Storage Facilities
 Location: San Jose/Sunnyvale

	875 E. Arques Avenue, Sunnyvale			317 Weddell Drive, Sunnyvale			5679 Santa Teresa Bl, San Jose		
	Saturday, January 19th			Saturday, January 19th			Saturday, January 26th		
	Lot	Cut-Thru	Bikes	Lot	On-Street	Bikes	Inside Lot	Outside Lot	Bikes
6:00AM	3	0	0	0	0	0	3	2	0
6:15AM	4	0	0	0	0	0	3	2	0
6:30AM	4	0	0	0	0	0	3	2	0
6:45AM	4	0	0	0	0	0	3	2	0
7:00AM	4	0	0	0	0	0	3	2	0
7:15AM	4	0	0	0	0	0	3	2	0
7:30AM	4	1	0	0	0	0	3	2	0
7:45 AM	4	0	0	0	0	0	3	2	0
8:00 AM	4	0	0	0	0	0	3	2	0
8:15 AM	4	0	0	0	0	0	4	2	0
8:30 AM	3	0	1	0	0	0	4	2	0
8:45 AM	4	0	0	0	0	0	3	2	0
9:00 AM	5	0	0	1	0	0	3	2	0
9:15 AM	3	0	0	1	0	0	3	2	0
9:30 AM	5	0	0	1	0	0	3	3	0
9:45 AM	7	0	0	1	0	0	3	2	0
10:00 AM	8	0	0	1	0	0	4	2	0
10:15 AM	6	0	0	2	0	0	4	2	0
10:30 AM	7	0	0	1	0	0	4	2	0
10:45 AM	10	0	0	1	0	0	5	2	0
11:00 AM	10	0	0	1	0	0	4	2	0
11:15 AM	8	0	0	2	0	0	5	2	0
11:30 AM	11	0	0	2	0	0	6	3	0
11:45 AM	10	0	0	1	0	0	6	3	0
12:00 PM	11	0	0	1	0	0	5	3	0
12:15 PM	7	0	0	0	0	0	5	3	0
12:30 PM	7	0	0	0	0	0	6	3	0
12:45 PM	6	0	0	1	0	0	5	3	0
1:00 PM	8	0	0	2	0	0	6	3	0
1:15 PM	7	1	0	2	0	0	5	4	0
1:30 PM	6	0	0	3	0	0	4	4	0
1:45 PM	8	0	0	3	0	0	4	4	0
2:00 PM	11	0	0	2	0	0	3	2	0
2:15 PM	13	0	0	2	0	0	3	1	0
2:30 PM	8	0	0	2	0	0	3	1	0
2:45 PM	9	0	0	3	0	0	4	1	0
3:00 PM	8	0	0	4	0	0	4	1	0
3:15 PM	8	0	0	3	0	0	5	2	0
3:30 PM	9	0	0	3	0	0	3	2	0
3:45 PM	12	0	0	4	0	0	3	3	0
4:00 PM	10	0	0	4	0	0	5	2	0
4:15 PM	14	0	0	4	0	0	5	2	0
4:30 PM	13	0	0	3	0	0	5	2	0
4:45 PM	13	0	0	4	0	0	6	2	0
5:00 PM	11	0	0	3	0	0	5	2	0
5:15 PM	11	0	0	3	0	0	6	0	0
5:30 PM	10	0	0	0	0	0	5	0	0
5:45 PM	8	0	0	0	0	0	5	0	0
6:00 PM	8	0	0	0	0	0	6	0	0
6:15 PM	8	0	0	0	0	0	4	0	0
6:30 PM	8	0	0	0	0	0	4	0	0
6:45 PM	8	0	0	0	0	0	3	1	0
7:00 PM	8	0	0	0	0	0	3	1	0
7:15 PM	10	0	0	0	0	0	3	0	0
7:30 PM	10	0	0	0	0	0	4	0	0
7:45 PM	8	0	0	0	0	0	4	0	0
8:00 PM	8	0	0	0	0	0	3	0	0
8:15 PM	8	0	0	0	0	0	3	1	0
8:30 PM	6	0	0	0	0	0	2	1	0
8:45 PM	4	0	0	0	0	0	2	1	0
9:00 PM	4	0	0	0	0	0	2	0	0