

MEMO

To: Brian Mickelson, P.E. City of Davis
Heidi Tschudin, City of Davis
Ike Njoku, City of Davis

From: Jonathan Flecker, P.E.

Date: July 31, 2018

Re: Plaza 2555 – Trip Generation Comparison

Based on the July 24 e-mail from John Ott to the City we have developed two alternative trip generations for the Plaza 2555 site. The proposed site is an apartment complex consisting of 200 units with a total of 646 bedrooms. Two alternatives were considered in developing the site trip generation, off-campus student housing and multi-family residential housing.

Trip generation rates for off-campus student housing were based on data collected as part of the Sterling Apartments traffic impact study completed in 2015. The two sites studied included Greystone Apartments and The U Apartments. Both are located near the 5th Street / Cantrill Drive intersection. These apartments have similar characteristics to the proposed Plaza 2555 site, being about 1¾ miles from the UC campus and on Unitrans bus lines. Table 1 presents the average rates developed from these apartment sites. The average trip rates per bedroom is 0.109 trips per bedroom in the a.m. peak hour and 0.194 trips per bedroom in the p.m. peak hour.

**TABLE 1
OFF-CAMPUS STUDENT HOUSING TRIP GENERATION**

Location	Total Bedrooms	Total Motor Vehicle Trips AM	AM Trip Rate	Total Motor Vehicle Trips PM	PM Trip Rate
The U	504	42	0.104	83	0.205
Greystone	405	57	0.113	93	0.185
Average Trip Rate per Bedroom			0.109		0.194

Trip generation for the multi-family residential alternative was based on the number of residents that could be expected in the complex. The density, in residents per bedroom, was derived from information compiled from data provided in The Sterling Apartments and Lincoln 40 student housing project traffic impact studies as part of their respective environmental documents. The trip generation calculations utilized the estimated density

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and the trip rates and directional distributions provided in *ITE Trip Generation, 10th Edition* for Land Use 221, Multi-Family Residential (Mid-Rise).

Table 2 presents the average density for the three sites. The average density is about 1.20 beds per bedroom. This rate was applied to the total project bedrooms to derive a total predicted residency (773 residents) for the site.

**TABLE 2
 ROOM DENSITY FOR OFF-CAMPUS STUDENT HOUSING**

Location	Total Beds (Residents)	Total Bedrooms	Total Residents
The U†	582	504	773
Lexington Apartments‡	407	347	
Arbors Apartments‡	275	206	
Average Density (Beds per Bedroom)		1.20	
Plaza 2555		646	

†Sterling Apartments DEIR, September 2016

‡ Lincoln40 Apartments DEIR, June 2017

Table 3 displays the projected a.m. and p.m. peak hour trip generation for each alternative for the Plaza 2555 project. Using off-campus student housing as the independent variable the project is expected to generate 70 a.m. and 125 p.m. peak hour trips. With the total number of multi-family residents used the project could generate 162 a.m. peak hour trips and 131 p.m. peak hour trips. The highest trip generation is shown to occur in the a.m.; often, the p.m. peak hour is identified with a higher number of trips. The projected trips represent the peak hour of the a.m. and p.m. peak periods, which are typically multi-houred. The morning rate may be higher as this time is a more constrained period with more people leaving to go to work and school in a shorter span. During the p.m. period there are fewer constraints with households having a greater period in completing tasks, resulting in fewer peak hour trips, but not necessarily fewer p.m. peak period trips.

Based on the trip generation comparison we are proposing to use the a.m. and p.m. peak hour trips for the multi-family residential alternative to analyze the site.

Please confirm if this is acceptable and contact me with any questions.

**TABLE 3
 PROJECT TRIP GENERATION COMPARISON**

Land Use	Amount	Trip Generation Rate		Trips			
		AM Peak Hour	PM Peak Hour	AM Peak Hour		PM Peak Hour	
Off-Campus Student Housing	646 Bedrooms	0.11	0.19	70		125	
				In	Out	In	Out
				20%	80%	63%	37%
New Trips – Off Campus Student Housing				14	56	79	46
Land Use	Amount	Trip Generation Rate		Trips			
		AM Peak Hour	PM Peak Hour	AM Peak Hour		PM Peak Hour	
Multi-Family Residential (LU 221)	773 Residents	0.21	0.17	162		131	
				In	Out	In	Out
				26%	74%	64%	36%
New Trips – Multi-Family Residential				42	120	84	47

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