NELSON
NYGAARD

MEMORANDUM

To: Brian Reynolds

From: Brian Canepa

Date: December 18, 2018

Subject: Castilleja School TDM Program Analysis Memorandum

The purpose of this memo is to analyze data provided by Fehr & Peers to determine the success of the School's transportation demand management (TDM) program in reducing auto impacts and achieving compliance with City requirements. The School's conditional use permit set a vehicle trip limit of 511 AM peak hour trips, based upon the estimated number of trips in 2000. The analysis of data includes traffic counts, affiliate mode share, and parking demand.

Traffic Analysis

Figure 1 shows the number of peak hour trips counted at each of the time points from 2000 to 2018. The figure demonstrates that vehicle trips in October 2018 have been reduced by 31% since May 2012. This is the largest reduction measured since counts began, exceeding even the 25% reduction in April 2018.

In addition, the number of trips during the School's two-hour morning commute period (7:00 am – 9:00 am) also reached its lowest mark since counts were first conducted. Between April 2014 and October 2018, trips during this period declined by almost 24%.

116 NEW MONTGOMERY STREET, SUITE 500 SAN FRANCISCO, CA 94105 415-284-1544 FAX 415-284-1554

Figure 1 Vehicle Trip Counts without TDM (2000 & 2012) and with TDM (2013 -2018)

Scenario	Trips			% Trip Reduction	AM Trip Rate			Rate (%)	
	In	Out	Total		In	Out	Total	In	Out
2000[1] (385 students)	335	176	511	0%	0.87	0.46	1.33	66%	34%
May 2012 (433 students)	285	226	511	0%	0.66	0.52	1.18	56%	44%
Oct. 2013[2] (448 students)	246	211	457	11%	0.55	0.47	1.02	54%	46%
Apr. 2014 (446 students)	255	202	457	11%	0.57	0.45	1.02	56%	44%
Dec. 2014 (444 students)	264	208	472	8%	0.59	0.47	1.06	56%	44%
May 2015 (444 students)	231	197	428	16%	0.52	0.44	0.96	54%	46%
Sept. 2015 (438 students)	222	176	398	22%	0.51	0.40	0.91	56%	44%
Apr. 2016 (438 students)	216	180	396	23%	0.49	0.41	0.90	55%	45%
Sept./Oct. 2016 (438 students)	227	186	413	19%	0.52	0.42	0.94	55%	45%
Apr. 2017 (433 students)	229	196	425	17%	0.53	0.45	0.98	54%	46%
Oct. 2017 (438 students)	223	192	415	19%	0.51	0.44	0.95	54%	46%
Apr. 2018 (432 students)	204	179	383	25%	0.47	0.42	0.89	53%	47%
Oct. 2018 (434 students)	191	160	351	31%	0.44	0.37	0.81	54%	46%

Mode Share

Student morning arrival mode share information for the 7:00 to 9:00 am timeframe was collected from 2012 to 2018. Prior to the implementation of the School's more robust TDM program (including its bus route and Caltrain shuttle operations), the great majority of students arrived at school by car (86%) with few walking or taking transit. Since the expanded program's inception, single-occupancy vehicle trips have declined from 57% in 2012 to 36% in 2018, a significant

[1] Analysis of 2000 trip counts conducted by Fehr & Peers (October 21, 2013).

[2] Conducted for one half-hour (7:30 – 8:00 am) only, when the majority of students arrive on campus. Fehr & Peers (February 4, 2015).

decrease. Likewise, driving rates in 2018 have fallen to 61%, with the largest decrease in single-student drop-off trips and shuttle use increasing to 22%. Since April 2018, there was also a noticeable increase in vehicles driving and parking on campus, but most of the new demand was from increased carpooling (particularly among students, as noted in the parking analysis below). Figure 2 provides detailed data regarding student mode share.

Figure 2 Student Morning Arrival Mode Share[3]

Mode	Oct. 2018	Apr. 2018	Oct. 2017	Apr. 2017	Sept./Oct. 2016	Apr. 2016	Sept. 2015	May 2015	Dec. 2014	Apr. 2014	May 2012
Drop Off	52%	61%	58%	57%	55%	52%	55%	62%	58%	59%	74%
Single student	*31%*	*41%*	*36%*	*36%*	*37%*	*39%*	*41%*	*45%*	*40%*	*38%*	*48%*
Carpool	*21%*	*20%*	*22%*	*21%*	*19%*	*13%*	*14%*	*17%*	*19%*	*21%*	*26%*
Drive and park on campus	9%	6%	6%	6%	8%	8%	10%	3%	7%	8%	12%
Drive alone	*5%*	*4%*	*3%*	*3%*	*6%*	*6%*	*5%*	*2%*	*6%*	*4%*	*9%*
Carpool	*4%*	*2%*	*3%*	*3%*	*1%*	*2%*	*5%*	*1%*	*1%*	*4%*	*3%*
Drive and park off-campus	0%	0%	0%	0%	0%	0%	1%	0%	0%	2%	2%
Walk	9%	9%	7%	8%	8%	19%	10%	13%	18%	15%	4%
Bike	8%	6%	8%	8%	10%	8%	11%	9%	5%	6%	6%
Shuttle/Transit	22%	18%	21%	22%	19%	13%	14%	13%	12%	11%	2%

Parking Analysis

The parking analysis conducted by Fehr & Peers details parking demand in both campus lots and on adjacent on-street spaces. As observed, the staff parking lot on Emerson Street and Kellogg Avenue reached 84% occupancy between 1:00 and 2:00 pm. The student lot on Emerson Street reached full capacity between 12:00 and 1:00 pm while the staff and visitor parking lot on Bryant Street peaked at 64% occupancy between 2:00 pm to 4:00 pm. Total off-street parking demand increased by 6% from April 2018.

Adjacent on-street spaces were analyzed by examining those spaces immediately adjacent to campus and studying additional parking spaces further from campus. The results of the counts show that on-street occupancy immediately adjacent to campus decreased by 4% from April 2018. No attempt was made to assess whether the parked vehicles were driven by Castilleja staff, students, or visitors.

Overall, since May 2012, the parking demand rate in school lots and on-street spaces immediately adjacent to campus has decreased by almost 6%. Based on occupancy data in October 2018, parking demand appears to have shifted with a decrease in staff parking demand and an increase

[3] May 2012 data based on electronic surveys of students and parents. All other data provided on site observations conducted by Fehr & Peers (July 7, 2017).

in student demand, particularly among carpoolers, with more students shifting from off-campus to on-campus.

Conclusion

The traffic, parking, and travel data collected demonstrate that the TDM program has made demonstrable, impressive strides in further reducing vehicle trips in the past year. Vehicle trip reductions had stayed relatively stable from 2015 to 2017, but in 2018 the School has witnessed a continued, greater reduction in trips both in the peak hour and two-hour commute period. The program appears to have been aided both by the success of the Ride Amigos program utilized by employees and a greater shift among students towards both shuttle use and carpooling (to on-campus spaces).

In general, these data indicate that the program has improved upon its already successful history with almost one-third of all vehicle trips eliminated since 2012. The School should be encouraged to further survey affiliates moving forward to help understand and document this remarkable accomplishment.