

KLEIN

TRAFFIC CONSULTING, LLC

156 Walker Road
West Orange, NJ 07052
973-985-3464
leekleintraffic@gmail.com

March 18, 2021

Mr. Raj Gupta
Gupta Development
2449 Kennedy Boulevard, Suite 100
Jersey City, NJ 07304

VIA EMAIL: raj@guptadevelopment.com

**Re: Traffic Engineering Evaluation Update and Shared Parking Calculations
Waterview, Lot 1.04
City of Bayonne, Hudson County**

Dear Mr. Gupta:

This Traffic Engineering and Parking Evaluation (TEPE) letter outlines our findings, recommendations, and conclusions based on the proposed changes to the development plan for Waterview, Lot 1.04 to increase the commercial square footage from 6,000 square feet to 13,552 square feet. The previously approved 97 units of multifamily housing (mid-rise) and previously approved parking supply of 127 parking spaces will remain the same. The parking requirement for the proposed changes would be 148 parking spaces according to the local Ordinance requirements. The purpose of this report is to use the industry accepted technique known as “shared parking” to establish that the proposed parking supply of 127 parking spaces is adequate to serve the combination and quantity of land uses within Waterview, Lot 1.04. It should also be noted that there are nine on-street parking spaces along the site frontage on Goldsborough Drive.

Trip Generation

We updated Table 1 - Trip Generation from our Traffic Engineering Evaluation report dated July 10, 2017. Using the NJDOT Access Permit Trip Generation rates, which were updated as of February 8, 2019, we calculated the trip generation for the currently proposed 13,552 square feet of commercial space. The previously approved trips for the 97 dwelling units and 6,000 square feet of commercial spaces are shown in Table 1 for comparison purposes. Table 1 shows that there would be a decrease of 48 new trips during the AM peak hour, an increase of

7 trips during the PM peak hour, and an increase of 46 peak hour trips on a Saturday. This change in peak hour trips is not considered a significant increase according to the NJDOT.

Parking Analysis

The parking analysis focused on the industry accepted “shared parking” technique, which involves calculating the hourly parking demand of each land use within a mixed-use development by using the temporal distribution of the parking demand of each land use, as provided in *Parking Generation, 5th Edition*, published by the Institute of Transportation Engineers (ITE). This effort involved determining the square footage of each commercial space (such as retail sales and service, child day care center, and restaurant) as well as the number of residential units, establishing the parking requirements for each individual land use from the local Ordinance parking requirements, then totaling each hourly parking demand for each use in the proposed development to determine the peak parking demand and the associated hour of the day. These data are tabulated in an Excel spreadsheet, which allows input of the proposed square footage of each commercial use and number of residential units to determine a more realistic parking supply. The maximum parking demand for the entire redevelopment area for the single peak hour would be the minimum parking supply for the Waterview proposed combination of land uses. We performed this shared parking analysis for a typical weekday and a typical Saturday.

We calculated the parking requirements of the 97 dwelling units and 13,552 square feet of commercial space based on the local Ordinance parking requirements for the individual uses proposed within the subject site to be 148 parking spaces. We used the temporal distribution data provided in the *Parking Generation, 5th Edition*, published by the Institute of Transportation Engineers (ITE) for each land use to prepare the shared parking analysis. We determined the number of parking spaces required for the 97 dwelling units to be 107 parking spaces based on 1.1 parking spaces per dwelling unit . We calculated the local Ordinance parking requirement of 3 parking spaces per 1,000 square feet to be 41 parking spaces for the 13,552 square feet of commercial space. The child day care center of 6,180 square feet requires 19 parking spaces, the 1,460 square feet of retail space requires 5 parking spaces and the total of 5,912 square feet of restaurant space requires 17 parking spaces.

Based on the hourly variation in parking demand from the data provided in *Parking Generation, 5th Edition*, we determined the peak parking demand for the combination of the land uses in the mixed-use development. We established the weekday and Saturday parking demand of the shared parking situation, as summarized in the Shared Parking Requirements Summary tables, attached. During the day time hours, the residential cars are driven away from the site, while the commercial customers’ cars are driven to the site. In the late evening hours when the commercial establishments close and the residents return home the reverse parking demand would occur. With approximately 50 percent of the residential parking demand off-site during the midday hours, those vacant parking spaces are available for the commercial parking

demands. We determined the maximum parking demand for the mixed-use development to be 107 parked cars between 12 midnight and 6 AM on a weekday and 107 parked cars from 12 midnight to 6 AM on a Saturday. No parking spaces should be reserved for any one use. All 127 proposed parking spaces should remain available for all users of the Waterview mixed-use development. The proposed parking supply of 127 parking spaces would provide 15 percent more parking spaces than would be required using the results of 107 parking spaces from the shared parking analysis. There are also nine on-street parking spaces that have not been included in the parking analysis. There are nine on-street parking spaces located along the site frontage on Goldsborough Drive that would be available for retail customers and residential visitors.

Conclusion

Using the local Ordinance requirements for parking for the currently proposed Waterview development, lot 1.04, the total parking requirement is 148 parking spaces. Using the industry accepted technique of shared parking, the maximum peak parking demand would be 107 parked cars during the overnight hours of 12 midnight to 6 AM, both on a weekday and a Saturday. Therefore, the proposed parking supply of 127 parking spaces would be adequate to accommodate the peak parking demand of 107 parked cars with a 15 percent factor of safety. There are nine on-street parking spaces that were not included in the parking analysis that would be available to the retail customers and visitors.

Please contact me if you have any questions.

Sincerely,



Lee D. Klein, P.E., PTOE
NJPE 24GE03710400
PTOE Certification 1627

C:\LeeWork\GUPTA\Bayonne-Lot1.04\KleinTraffic-TEPE-ShrdPrkng-L104-Bayonne_031821Final.docx

**TABLE 1 - TRIP GENERATION SUMMARY (USING NJDOT HAPS TRIP GENERATION RATES)
HARBOR STATION PHASE 01 (WATERVIEW)
GOLDSBOROUGH ROAD, BAYONNE, HUDSON COUNTY, NJ**

PREVIOUSLY APPROVED									
LAND USE									
CODE	LAND USE DESCRIPTION	UNITS OF MEASURE (X)	AM PEAK HOUR	PM PEAK HOUR	WEEKDAY DAILY TRIPS	WEEKEND PEAK HOUR	WEEKEND DAILY TRIPS	WEEKEND PEAK HOUR	WEEKEND DAILY TRIPS
219	Apartments < = 175 Units	97	55	73	645	50	620	50	620
826	Specialty Retail Center	6,000	41	30	266	41	252	41	252
TOTAL SITE-GENERATED DRIVEWAY TRIPS			96	103	911	91	872	91	872
PASS-BY CREDIT (-88% PM; -38% SATURDAY)			0	-27		-16		-16	
TOTAL SITE-GENERATED NEW TRIPS			96	77		76		76	

CURRENTLY PROPOSED (HAPS, FEBRUARY 8, 2019)									
LAND USE									
CODE	LAND USE DESCRIPTION	UNITS OF MEASURE (X)	AM PEAK HOUR	PM PEAK HOUR	WEEKDAY DAILY TRIPS	WEEKEND PEAK HOUR	WEEKEND DAILY TRIPS	WEEKEND PEAK HOUR	WEEKEND DAILY TRIPS
221	Multifamily Housing (Mid-Rise)	97	35	43	527	43	476	43	476
820	Shopping Center	13,552	13	134	1544	128	625	128	625
TOTAL SITE-GENERATED DRIVEWAY TRIPS			48	177	2071	170	1101	170	1101
PASS-BY CREDIT (-70% PM; -38% SATURDAY)			0	-93		-49		-49	
TOTAL SITE-GENERATED NEW TRIPS			48	83		121		121	
CHANGE IN SITE-GENERATED DRIVEWAY TRIPS			-48	73	1160	79	229	79	229
CHANGE IN SITE-GENERATED NEW TRIPS			-48	7		46		46	
(NO SIGNIFICANT INCREASE IN TRIP GENERATION)			<100	<100		<100		<100	

SHARED PARKING REQUIREMENTS SUMMARY

INSTITUTE OF TRANSPORTATION ENGINEERS - SHARED PARKING METHODOLOGY

WATERVIEW, BAYONNE	PARKING SPACES REQUIRED		PARKING GENERATION, 5TH EDITION, ITE	
	Variable	Minimum Off-street		
Proposed Development				
Rates -- Square feet per space				
High-TO, S-D Restaurant(BL&D)	sq ft/space	333		
Shopping Center (Wkdy-Non-Dec)	sq ft/space	333		
Day Care Center	sq ft/space	333		
Restaurant Bar & Lounge	sq ft/space	333		
Parking Required per 1,000 SF or Unit				
High-TO, S-D Restaurant(BL&D)	1000 sq ft	3.00		
Shopping Center (Wkdy-Non-Dec)	1000 sq ft	3.00		
Day Care Center	1000 sq ft	3.00		
Restaurant	1000 sq ft	3.00		
Multifamily Housing (Mid-Rise)	1 bedroom	1.10		
Multifamily Housing (Mid-Rise)	2 bedroom	1.10		
Ordinance parking requirements				
High-TO, S-D Restaurant(BL&D)	5,912	17		
Shopping Center (Wkdy-Non-Dec)	1,460	5		
Day Care Center	6,180	19		
Restaurant	-	-		
One-bedroom Apartments	97	107		
Two-bedroom Apartments	-	-		
Total required spaces	13,552	148		
Spaces provided		127		
Subtotals				
Totals				
INTERIM TOTAL				

Peak Parking Accumulation	ITE Code	Size Variable	Weekday Rate	Weekday	Sat Rate	Saturday
High-TO, S-D Restaurant(BL&D)	932	5,912 sq ft	3.00	18	3.00	18
Assumed capture parking				5%		5%
Net retail parking demand				17		17
Shopping Center (Wkdy-Non-Dec)	820	1,460 sq ft	3.00	4	3.00	4
Assumed capture parking				5%		5%
Net retail parking demand				4		4
Day Care Center	565	6,180 sq ft	3.00	19	-	-
Assumed capture parking				5%		5%
Net retail parking demand				18		-
Apartment -1 Shared Space/Unit	221	97 units	1.10	107	1.10	107
Apartment -1 Reserved Space/Unit	221	97 units	1.10	107	1.10	107
Apartment -1 Shared Space/Unit	221	- units	1.10	-	1.10	-
Apartment -1 Reserved Space/Unit	221	- units	1.10	-	1.10	-

C:\LeeWork\GUPTA\Bayonne-Lot1.04\SharedParking_Waterview.xlsx\SharedParkAnalysisSum

SHARED PARKING REQUIREMENTS SUMMARY

INSTITUTE OF TRANSPORTATION ENGINEERS - SHARED PARKING METHODOLOGY

Reserved parking space per unit
0.00

WEEKDAY SHARED PARKING	Mixed Use Development						Total Demand Waterview
	Day Care Center	High-TO, S- D Restaurant(B L&D)	Shopping Center (Wkdy-Non-Dec)		Residential		
MAXIMUM DEMAND	18	17	4	-	-	107	107
6:00 AM	-	-	2	-	-	89	90
7:00 AM	11	4	-	-	-	76	91
8:00 AM	18	11	1	-	-	65	95
9:00 AM	17	12	1	-	-	59	89
10:00 AM	17	13	2	-	-	58	90
11:00 AM	17	14	3	-	-	57	91
12:00 PM	17	17	4	-	-	54	91
1:00 PM	17	15	4	-	-	52	89
2:00 PM	17	9	4	-	-	52	83
3:00 PM	13	7	3	-	-	54	77
4:00 PM	9	7	3	-	-	62	82
5:00 PM	9	11	4	-	-	68	92
6:00 PM	9	15	4	-	-	72	99
7:00 PM	-	13	3	-	-	75	92
8:00 PM	-	11	3	-	-	81	95
9:00 PM	-	7	2	-	-	89	98
10:00 PM	-	4	1	-	-	96	100
11:00 PM	-	-	-	-	-	100	100
12:00 AM	-	-	-	-	-	107	107
Peak parking accumulation Add 5% Overage							107 5
Total spaces required							113
SATURDAY SHARED PARKING	Mixed Use Development						
	Day Care Center	High-TO, S- D Restaurant(B L&D)	Shopping Center (Wkdy-Non-Dec)		Residential		Total Demand Waterview
MAXIMUM DEMAND	-	17	4	-	-	107	107
6:00 AM	-	3	-	-	-	104	106
7:00 AM	-	5	-	-	-	102	106
8:00 AM	-	9	1	-	-	94	104
9:00 AM	-	13	2	-	-	89	103
10:00 AM	-	15	3	-	-	80	98
11:00 AM	-	17	4	-	-	76	96
12:00 PM	-	15	4	-	-	73	92
1:00 PM	-	13	4	-	-	71	88
2:00 PM	-	11	4	-	-	75	90
3:00 PM	-	8	4	-	-	74	85
4:00 PM	-	7	4	-	-	77	87
5:00 PM	-	7	3	-	-	79	89
6:00 PM	-	7	3	-	-	79	89
7:00 PM	-	10	3	-	-	78	91
8:00 PM	-	7	3	-	-	80	90
9:00 PM	-	6	2	-	-	83	91
10:00 PM	-	6	2	-	-	88	95
11:00 PM	-	-	-	-	-	94	94
12:00 AM	-	-	-	-	-	107	107
Peak parking accumulation Add 5% overage							107 5
Total spaces required							113