



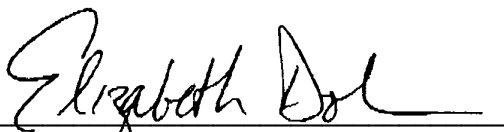
181 WEST HIGH STREET  
SOMERVILLE, NJ 08876

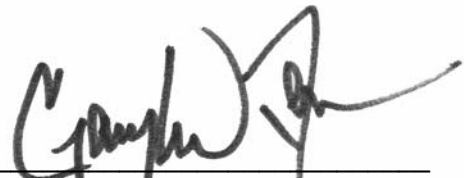
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TRAFFIC AND PARKING STUDY  
FOR  
SWE PLAINFIELD DEVELOPMENT  
URBAN RENEWAL LP  
611 WEST FRONT STREET

BLOCK 233, LOTS 2, 3, 7 & 12  
CITY OF PLAINFIELD  
UNION COUNTY, NEW JERSEY

REVISED: MAY 5, 2022  
MARCH 21, 2022

  
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## INTRODUCTION

The Royal was approved for 611 West Front Street in Plainfield. The approved site plan included 316 apartments and 16,500 square feet of commercial space, with access via full movement driveways on Plainfield Avenue and Waynewood Park, and an egress-only driveway on West Front Street.

A modified site plan has been developed with 501 apartments and an 18,000 square foot supermarket. Access is proposed via full-movement driveways on all frontages.

Dolan & Dean Consulting Engineers, LLC (D&D) has prepared this study to compare trip generation associated with the approved and current site plans, and to review the proposed parking supply.



## TRIP GENERATION

D&D prepared and submitted a revised Traffic Impact Analysis dated April 12, 2021 for the original development. The trip generation estimates within that report were prepared using the 10<sup>th</sup> Edition of the Trip Generation Manual by the Institute of Transportation Engineers (ITE). The ITE Multifamily Housing (Mid-Rise) and Shopping Center rates were used in the original analysis.

Since the issuance of the revised traffic study, the ITE has issued the 11<sup>th</sup> edition of the Trip Generation Manual. The Multifamily Housing (Mid-Rise) rates have changed resulting in a higher morning peak hour rate and lower evening peak hour rate. For consistency, the 10<sup>th</sup> edition rates have therefore been used for the residential trip generation, showing a proportional increase in trips based on the increase from 316 units to 501 units.

For the proposed grocery store, the 11<sup>th</sup> edition Supermarket rates have been used.

The standard Urban/Suburban rates have been used, which take no credit for mass transit and proximity of the Plainfield Train Station.

The 3<sup>rd</sup> edition of the ITE Trip Generation Handbook provides pass-by rates for commercial uses, particularly for the evening peak hour. For shopping centers, a pass-by rate of 34% is applicable to the evening peak hour. For grocery stores, a 36% evening peak hour pass-by credit is applicable. A 35% pass-by credit is therefore applicable to the evening peak hour.

The Trip Generation Handbook also provides the methodology to calculate shared trips between uses in a mixed-use development. Internal trip calculations are appended for the evening peak hour.



Tables I and II summarize the resultant trip generation, by trip type, for the approved and current development proposals.

TABLE I  
TRIP GENERATION BY USE AND TYPE – APPROVED DEVELOPMENT

PEAK HOUR		ENTER	EXIT	TOTAL
Morning	New Trips	51	105	156
Evening	New Residential Trips	85	54	139
	New Retail Trips	27	27	54
	Pass-by Trips	<u>15</u>	<u>15</u>	<u>30</u>
	Total	127	96	223

TABLE II  
TRIP GENERATION BY USE AND TYPE – PROPOSED DEVELOPMENT

PEAK HOUR		ENTER	EXIT	TOTAL
Morning	New Trips	77	154	231
Evening	New Residential Trips	114	78	192
	New Retail Trips	51	39	90
	Pass-by Trips	<u>21</u>	<u>21</u>	<u>42</u>
	Total	186	138	324

Table III summarizes the trip generation for analysis.

TABLE III  
NEW TRIP COMPARISON

PEAK HOUR	APPROVED	PROPOSED	INCREASE
Morning	156	231	75
Evening	193	282	89

Based on the peak hour increases, the 2021 analyses may result in longer delay at the intersection, but the intersection of Plainfield Avenue and Front Street will operate at acceptable levels of service. The increased trip generation will result in only 17 trips added to the intersection during the morning peak hour. During the evening peak hour, 27 trips will be added to the intersection. Similarly, with full-movement driveways on all frontages, acceptable levels of service will result at the driveways and on the Waynewood Park approach to Front Street.



## PARKING

The parking requirements are 1 space per unit and 1 space per 300 square feet of commercial space. Therefore, 501 spaces are required for the 501 apartments, and 60 spaces are required for the 18,000 square foot grocery store. The plan proposes 534 parking spaces although 561 are technically required. However, residential parking demands peak overnight. Unless the grocery store is open 24 hours, there should be no commercial parking demand overnight. Therefore, the combination of uses proposed on site are able to share parking.

The ITE Parking Generation Manual provides hour-by-hour parking demand tables for many land uses, including Multifamily Housing and Supermarkets. Using the hour-by-hour parking demand rates, and an assumed 10% commercial demand overnight, the attached worksheet shows a maximum demand of 511 spaces, which is less than the 534 spaces proposed.

In addition, the New Jersey's electric vehicle (EV) charging law requires that 15% of the parking supply be prepared as EV charging spaces. A space prepared with EV charging equipment shall count as 2 parking spaces for the purpose of complying with minimum parking requirements, up to no more than (10%) of the total required parking. The site plan provides 27 EV spaces, which provides a credit of 15 spaces. The 534 proposed spaces plus the 27-space credit equals the required supply of 561 parking spaces.



# TECHNICAL APPENDIX

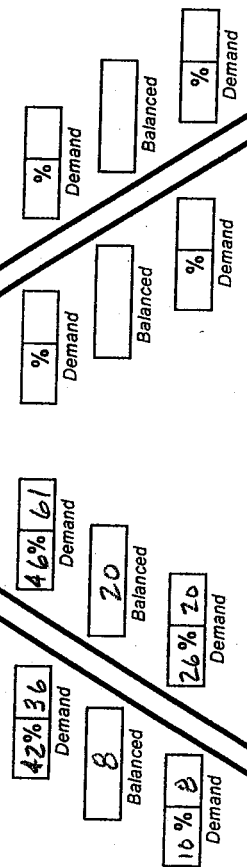
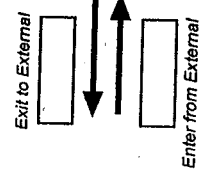
Analyst DS'D  
 Date MARCH 2022  
MAY 2022

**MULTI-USE DEVELOPMENT  
 TRIP GENERATION  
 AND INTERNAL CAPTURE SUMMARY**

Name of Dvlpt 611 FRONT  
 Time Period PM PEAK HOUR

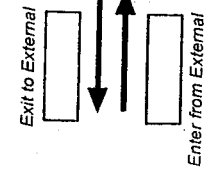
LAND USE A RESIDENTIAL

ITE LU Code _____		Size _____	
Total	Internal	External	
Enter	20	114	
Exit	8	78	
Total	28	192	
%			



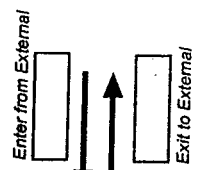
LAND USE B MARKET

ITE LU Code _____		Size _____	
Total	Internal	External	
Enter	8	72	
Exit	20	60	
Total	28	132	
%			



LAND USE C \_\_\_\_\_

ITE LU Code _____		Size _____	
Total	Internal	External	
Enter			
Exit			
Total			
%			



35% PASS BY CREDIT

NEW PASSBY

ENTER	51	39	90
EXIT	21	21	42
TOTAL	72	60	132

**Net External Trips for Multi-Use Development**

	LAND USE A	LAND USE B	LAND USE C	TOTAL
Enter	114	72		186
Exit	78	60		138
Total	192	132		324
Single-Use Trip Gen. Est.				INTERNAL CAPTURE

Source: Kaku Associates, Inc.

611 Front Street, Plainfield, NJ  
 Shared Parking Calculations - 501 Dwelling Units & 18,000 SF Commercial  
 March 2022



HOUR	WEEKDAY										SATURDAY															
	% OF		MAX RESID	DEMAND	RESID	MAX RETAIL	% OF		MAX RESID	DEMAND	RESID	MAX RETAIL	% OF		MAX RESID	DEMAND	RESID	MAX RETAIL	% OF							
	MAX	RESID <sup>1</sup>					MAX	RETAIL <sup>2</sup>					MAX	RETAIL <sup>2</sup>					MAX	RETAIL <sup>2</sup>	MAX	RETAIL <sup>2</sup>	MAX	RETAIL <sup>2</sup>	MAX	RETAIL <sup>2</sup>
4:00 AM	501	100	501.0	60	10	10	10	511	501	100	501.0	60	10	60	10	60	507	501	100	501.0	60	10	60	10	60	507
5:00 AM	501	94	470.9	60	10	10	10	481	501	99	496.0	60	10	60	10	60	502	501	99	496.0	60	10	60	10	60	502
6:00 AM	501	83	415.8	60	20	12	12	428	501	97	486.0	60	12	60	11	6.6	493	501	97	486.0	60	11	6.6	60	6.6	493
7:00 AM	501	71	355.7	60	30	18	18	374	501	95	476.0	60	18	60	15	9	485	501	95	476.0	60	15	9	60	9	485
8:00 AM	501	61	305.6	60	30	18.0	18.0	324	501	88	440.9	60	18.0	60	8	4.8	446	501	88	440.9	60	8	4.8	60	4.8	446
9:00 AM	501	55	275.6	60	59	35.4	35.4	311	501	83	415.8	60	35.4	60	22	13.2	429	501	83	415.8	60	22	13.2	60	13.2	429
10:00 AM	501	54	270.5	60	59	35.4	35.4	306	501	75	375.8	60	35.4	60	70	42.0	418	501	75	375.8	60	70	42.0	60	42.0	418
11:00 AM	501	53	265.5	60	67	40.2	40.2	306	501	71	355.7	60	40.2	60	96	57.6	413	501	71	355.7	60	96	57.6	60	57.6	413
12:00 PM	501	50	250.5	60	86	51.6	51.6	302	501	68	340.7	60	51.6	60	99	59.4	400	501	68	340.7	60	99	59.4	60	59.4	400
1:00 PM	501	49	245.5	60	87	52.2	52.2	298	501	66	330.7	60	52.2	60	99	59.4	390	501	66	330.7	60	99	59.4	60	59.4	390
2:00 PM	501	49	245.5	60	93	55.8	55.8	301	501	70	350.7	60	55.8	60	97	58.2	409	501	70	350.7	60	97	58.2	60	58.2	409
3:00 PM	501	50	250.5	60	97	58.2	58.2	309	501	69	345.7	60	58.2	60	96	57.6	403	501	69	345.7	60	96	57.6	60	57.6	403
4:00 PM	501	58	290.6	60	97	58.2	58.2	349	501	72	360.7	60	58.2	60	100	60.0	421	501	72	360.7	60	100	60.0	60	60.0	421
5:00 PM	501	64	320.6	60	100	60.0	60.0	381	501	74	370.7	60	60.0	60	89	53.4	424	501	74	370.7	60	89	53.4	60	53.4	424
6:00 PM	501	67	335.7	60	99	59.4	59.4	395	501	74	370.7	60	59.4	60	42	25.2	396	501	74	370.7	60	42	25.2	60	25.2	396
7:00 PM	501	70	350.7	60	83	49.8	49.8	401	501	73	365.7	60	49.8	60	22	13.2	379	501	73	365.7	60	22	13.2	60	13.2	379
8:00 PM	501	76	380.8	60	53	31.8	31.8	413	501	75	375.8	60	31.8	60	13	7.8	384	501	75	375.8	60	13	7.8	60	7.8	384
9:00 PM	501	83	415.8	60	38	22.8	22.8	439	501	78	390.8	60	22.8	60	10	6.0	397	501	78	390.8	60	10	6.0	60	6.0	397
10:00 PM	501	90	450.9	60	20	12	12	463	501	82	410.8	60	12	60	10	6	417	501	82	410.8	60	10	6	60	6	417
11:00 PM	501	93	465.9	60	10	10	10	476	501	88	440.9	60	10	60	10	6.0	447	501	88	440.9	60	10	6.0	60	6.0	447

<sup>1</sup>ITE Parking Generation Manual, Multifamily Housing (Mid-Rise)

<sup>2</sup>ITE Parking Generation Manual, Supermarket